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AN EXPERIMENTAL STUDY OF DUODENAL ULCER.

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Duodenal ulceration may occur at any age.[1] It may occur in very young babies of a few days old (Sajous, 1914).[9] Schmidt (1913)[10] says it is not uncommon in the first year of life, and is apparently due to some weakening condition, such as prolonged suppuration, sepsis, rachitis, nephritis and primary marasmus. Duodenal ulcers are seen in 6% of all cases of fatal burns. The majority of duodenal ulcers occur in men between 30 and 50, it usually being stated that the proportion of women to men being about 1 to 4, but as Osler (1913)[8] points out, the incidence of the disease appears to vary in different localities; it was found in 1.32% of all post-mortem examinations in the United States of America and Canada, in 5% in the continent of Europe, and in 4.2% of all post-mortem examinations in London. The old medical statistics showed a preponderance of females. The surgical statistics show a preponderance of males. The Melbourne Hospital surgical statistics for the five years 1912-1917 show the proportion of females to males of 1 to 6 for all duodenal ulcers. For perforated duodenal ulcers it is 1 to 10, the proportion of deaths from perforation being 1 to 5.

In the present research the animals used in a few cases were guinea-pigs, but in the majority of cases medium-sized, fully-developed dogs were used.

The solutions used were the following:—

Secretin.—In some cases this was prepared from the animal itself, but generally a sterile stock solution prepared from sheep's intestines was used.

Placental Extract (Exp. 34).—This was prepared with 480 gm. of fresh normal human placenta, mixed with 2,100 c.cm. of 2% NaCl solution. The mixture was incubated for 44 hours at 40° C., then acidulated with HCl, boiled, and filtered through filter paper. An equal volume of water and $CaCl_2$ sufficient to make a 0.025% solution, was added. The solution was filtered through a 7% collodion filter at 40 lbs. per square inch pressure, as required.

Liver Extract (Exp. 52).—To prepare this 120 gm. fresh sheep's liver was mushed with sand and mixed with 600 c.cm. of Ringer's solution. It was then incubated at 40° C. for 70 hours, acidulated with HCl, boiled and filtered.

Another set of experiments was performed with another extract (Exp. 66), prepared as follows:—

A. Liver, 600 gm., and Ringer's solution, 1,800 c.cm.

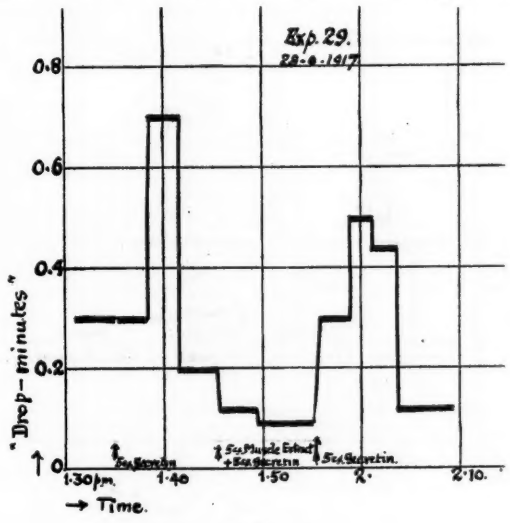
B. Liver, 100 gm., and Ringer's solution, 300 c.cm., boiled and inoculated with a small piece of liver, to have the same bacterial culture as *A*, but no enzyme action.

A and *B* were incubated at 40° C. for six days, acidulated with HCl, boiled and filtered.

Spleen (Exp. 52).—This extract was made by mushing 90 gm. fresh sheep's spleen with sand and mixing it with 450 c.cm. Ringer's solution. It was then incubated at 40° C. for 70 hours, acidulated, boiled and filtered.

Muscle Extract was prepared from minced dog's or ox muscle, heated in oven at temperatures ranging from 170° to 200° C. for from ten minutes to three hours. These various preparations all produced the same effect.

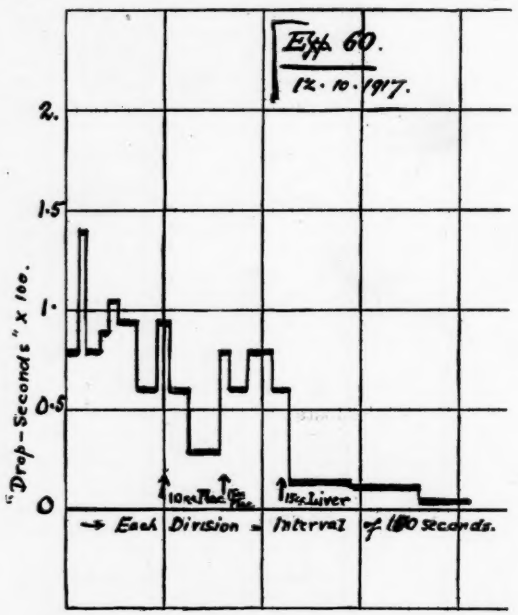
In the course of some experiments on the fever reaction in cases of burns (Jona, 1917),[7] the problem of the ætiology of duodenal ulceration in cases of severe burning presented itself. It was, therefore, decided to attempt to determine whether the injection of extracts of burnt tissues had any effect on pancreatic secretion, or, rather, any influence on the activity of secretin, which is ordinarily absorbed from the intestinal mucosa, where it is formed, by the action of the hydrochloric acid of the gastric juice on a precursor present, and which, on injection into the body stimulates the secretion of pancreatic juice, bile and *succus entericus* (Starling, 1915).[11] It was found (Jona, 1916, 1917)[6] [7] that muscle which had been heated to 200° C. gave in small doses a rise in temperature, and in large doses a fall in temperature, with general symptoms in every way comparable to the effects produced respectively by small or large doses of bacterial emulsions (or extracts). This aqueous extract also had a marked inhibitory effect on the activity of secretin in inducing a secretion of pancreatic juice in the dog (Exp. 29, Exp. 30, *see* Chart I.). This, I believe to be a potent factor in the causation of duodenal ulcers in cases of severe



Graph 1.

For details see protocol of Experiment 29.
"Drop-minutes" = the average number of drops per minute, being the inverse of the number of minutes taken for a drop to form.

burning, where products in the burnt tissues would continue to be absorbed for some time, and thus would inhibit the secretion of pancreatic juice (and bile and *succus entericus*, too, whose secretion is also stimulated by secretin). This would leave the duodenal mucosa open to the action of any hydrochloric acid from the stomach, and would favour the deposition of particles of food on the intestinal mucosa, owing to the fact that the mucous membrane would not be washed and lubricated by the intestinal juices, as would normally occur. Those parts would be particularly liable to suffer which have a poor blood supply or in which accumulations of food would be likely to occur on account of the anatomical relations of the part. The mucosa would also be open to the unrestrained action of those bacteria which ordinarily inhabit the intestinal mucosa (Hunter, 1912)[3] and which are normally kept under by these juices. The reported association of acute pancreatitis with duodenal ulcer is suggestive in this regard (Johnson, 1915).[4] Pursuing the subject further, I prepared the protein-free liquids containing bacterial decomposition products of tissue constituents (as above described) of human placenta, sheep's liver, and sheep's spleen. These liquids had a very powerful inhibitory effect (after a preliminary stage of excitation, in some cases) on the activity of secretin in inducing a flow of pancreatic juice. The liver extract was particularly potent (*see* Chart II. and the details of experiments appended). The experiments of Gunderman (1913)[2] are of interest in this regard. Ulceration in the stomach and duodenum of dogs and rabbits was produced by traumatizing the liver, impeding the circulation from the liver, or by inducing degenerative changes by other means. Experiments so far performed to determine whether these liquids have the same inhibitory effect on the activity of other glands indicate that the liver extract has an equal inhibitory effect on the secretory action of pilocarpine on the salivary glands, on the lachrymal glands, and on the sweat glands in the pads of the feet and between the toes in the dog. The effect on the secretion of milk or the activity of the kidney has not yet been tested. This inhibitory action on the secretion of saliva certainly suggests some relationship to the ætiology of gastric ulcer, whose formation apparently depends to some degree on the unrestrained action of gastric juice (Bolton, 1912).[1] The liver extract, on injection into the dog, after the administration of morphine and chloroform, lowered the blood pressure (after a short preliminary rise), whether the vagi were intact or cut. When the heart was under the influence of pilocarpine this liver extract exerted a definite toxic action, with marked further slowing or even temporary stillstand of the heart. Under curare the heart often failed altogether after an injection of the liver extract. The extracts of placenta and spleen, on injection into the animal, showed a more or less sympatho-mimetic action as regards the circulatory system.



Graph 2.

For details see protocol of Experiment 60.

"Drop Seconds" = the average number of drops per second, being the inverse of the number of seconds taken for a drop to form.

A further series of experiments was performed. The extract of liver, prepared as above described, was injected subcutaneously into four dogs daily (seven injections were given in nine days), about 1 to 1½ hours after feeding (Exp. 61). At the end of this period several of the animals were manifestly ill. They refused to take food, and had diarrhœa, with pale stools, stained with blood pigment. Post-mortem examination showed varying degrees of furring of the tongue, injection of the gastric mucosa, particularly at the fundus or pyloric end, marked injection of the duodenum, especially in the neighbourhood of the pancreatic duct openings, more or less patchy injection of the upper part of the jejunum, and generally more or less patchy injection of the rectum, especially in the regions of the lodgment of the fæcal masses in cases in which the fæces were solid. When the fæces were liquid, the rectal mucosa was covered with a very sticky semi-liquid, apparently an inspissated mucus. There was also a very marked general œdema of the wall of the whole gastro-intestinal tract in the three dogs most affected. A similar experiment performed on a guinea-pig (Exp. 69), to which 17 daily injections of the liver extract were given, showed somewhat different results. The animal bore 14 injections without apparently much ill-effect. On the last three days subsequent to these 14 injections, the animal refused its food, and died the morning after the seventeenth injection. Post-mortem examination showed that the bowel wall was very thin throughout the whole gastro-intestinal tract, and was very easily torn. There was marked injection, but no exudation of blood in the stomach and upper part of the small bowel. The kidneys were markedly injected. Whether these differences were due to the fact that the animals were carnivore and herbivore respectively, only a special series of experiments on different animals of the different classes could determine. At any rate, the apparent difference is significant. The clinical signs of dry skin, and parched, coated tongue, or the earlier stage of the œdematous

tongue, met with in the "intoxications," whether gastro-intestinal or bacterial, come into line with what was found experimentally; and when the primary cause is removed, it is common knowledge how rapidly the skin becomes restored to its natural moistness and the tongue cleans up. This is very easily demonstrated in a case of simple constipation. One is certainly struck by the fact that in advanced cases of inoperable cancer or other wasting disease, when the intestinal functions are obviously deranged, a very noticeable and distressing condition is the parched, dry mouth, associated with a thickly-coated, dry tongue, and accompanied by more or less ulceration of the alimentary tract. It is quite possible, too, that the little aphthous ulcers met with in the mouth, owe their origin to the same type of alimentary intoxication, with inhibition of secretion of the small glands in the mouth and blocking of the gland mouths by inspissated secretion. Consequent on the infection of the glands the whole painful little pustule breaks down, and forms the well-known punched-out ulcer. The absorption of foreign substances even in such a condition as constipation or bowel stasis, is evidenced by the foul breath and "high" urine, accompanied by symptoms of general intoxication, and by the rapidity with which these signs and symptoms disappear when the bowels are freely evacuated.

This brings us to another point. It is widely accepted that if there be a regular daily evacuation of the bowel, all is well. This need not necessarily be so. The central column of intestinal contents may quite easily be passed along at a normal rate, while the matter covering the mucosa may be passed along more slowly than normally due to some defect in peristalsis or secretion. This would lead to a real, though not apparent, stasis, which I believe to be more common than is generally recognized. The very offensive character of the first one or two evacuations passed by many people after a purgative, is certainly suggestive of an abnormal bacterial decomposition in the bowel, whose products are absorbed from the bowel and excreted by lungs, skin and kidneys, as evidenced by the fœtid breath, sweat, and urine.

The gastro-intestinal erosion produced by the oral administration of neutral oxalates (Jona, 1909),[5] which rob the mucosa of calcium, may have some bearing on the problem. The appearances of the stomach and duodenum in the animals above referred to (Exp. 61) were similar to the appearances obtained after the oral administration of neutral oxalates. It certainly is suggestive that calcium should exert such an inhibitory effect on the pyrexial and general action of bacterial pyrogen, as noted in a previous paper (Jona, 1917).[7] It is also very suggestive that we should find calcium so beneficial clinically in some so-called toxæmic or "constitutional" conditions. Unfortunately the evidence here is of such an irregular and empirical nature that no definite statistics can be given. The association of something of an infective nature or the obvious absorption of abnormal products (of bacterial origin) with the incidence of duodenal ulceration from infancy onwards, seems to have a direct bearing in regard to the experiments above described. The commonest age of incidence is that in which people notoriously do not take proper care of themselves. Food is improperly masticated, and is often infected by carious teeth, and the bowels irregularly attended to. Although one must recognize that constipation, as ordinarily understood, is more common in the female than in the male, yet in women, in a large proportion of cases, the self-administration of purgatives, and particularly of cathartic pills, is a regular exercise, while the man at work or in business would find this habit inconvenient. The Melbourne Hospital statistics showed that 64.9% of all patients with duodenal and gastric ulcers in females were engaged in domestic work, while 13.5% were dressmakers; 20.9% of the female patients with duodenal ulcer died, while none of those suffering from gastric ulcer died. In these statistics it is certainly noteworthy that nearly every case of perforated duodenal or gastric ulcer had a history or some evidence of constipation, flatulence or other indication of bowel stasis. It is also interesting that nearly in every case of perforated ulcer terminating fatally, the patient had a furred tongue on admission, while nearly every patient suffering from perforated ulcer who had a clean, moist tongue on admission to hospital, recovered. In these latter cases, obviously, the cause that led to the production of the ulcer had a much more powerful local action as regards the duodenum than a general action. What then, do these results teach us? I think I am justified in saying that they indicate to us that duodenal and gastric ulceration can be prevented by preventing the absorption of toxins, abnormal products of tissue breakdown (as in burns) or the products of bacterial action, parasitic or saprophytic. When the ulceration is already established, the specialist physicians and surgeons will tell us what to do, although I would here enter my protest against any side-tracking operation, such as gastro-enterostomy, without at the same time some attempt being made to find out the cause of the condition and removing or remedying it.

Conclusions.

1. It is shown that the occurrence of the peptic ulcer (gastric and duodenal) can be explained by the inhibition of the flow of saliva, pancreatic juice, *succus entericus*, and bile when these should be normally set up. This inhibition is caused by the absorption of toxic substances, which can be experimentally proved to have this inhibitory action. The exact site of ulceration depends on some local condition.

2. By eliminating the source of this absorption, the peptic ulcer should be preventable.

I desire to tender my sincere thanks to Professor W. A. Osborne for the use of his laboratories. Part of the expenses of this research are defrayed from a research grant by the University of Melbourne.

Protocols of Some Experiments.

All the animals except in Experiments 61 and 69 received a preliminary injection of morphine acetate (0.25 gramme), and were anæsthetized with chloroform.

Experiment 29 (June 28, 1917).—Dog No. 12, black Australian terrier. Right carotid artery, left jugu-

lar vein and pancreatic duct were cannulized. Secretin was prepared from about two feet bowel below the duodenum. Twenty grammes of muscle of the buttock were excised, heated in an oven at 170° to 200° C. for one hour, rubbed up with 20 c.cm. of saline solution and filtered. The filtrate was clear. Pancreatic juice not flowing. Injection, 5 c.cm. secretin. Drops at intervals of 2½ and 2 minutes. Half minute later injection 5 c.cm. muscle extract. Drop in four minutes. Half minute later injection 5 c.cm. secretin. Drops at intervals of 1¾, ¾, 2, and 2½ minutes. One minute later injection 5 c.cm. secretin. Drops at intervals of 3½, 2½, and 3½ minutes. Half minute later injection of 5 c.cm. secretin. Drops at intervals of 3½, 1½, and 4½ minutes. Then injection of mixture of 5 c.cm. secretin and 5 c.cm. muscle extract given. Four minutes later a half-drop of secretin knocked off the end of the cannula. After a further 5½ minutes another half drop knocked off. One minute later, 5 c.cm. secretin given. Drops at intervals of 3, 2, 2¼, and 8¾ minutes.

Experiment 30 (July 3, 1917).—Dog No. 18, black and white fox terrier. Right femoral (crural) artery and vein tied and 40 gm. of thigh muscles excised, cut up fine, and put into the oven at 200° C. for one hour; rubbed up with 50 c.cm. distilled water and filtered. The filtrate was a light brown, clear liquid. Pancreatic duct, right carotid artery and left jugular vein cannulized. Secretin prepared from about two feet of small bowel. Rate of natural secretion about one drop every 120 seconds.

(1) Injection 5 c.cm. secretin. Drops at intervals of 45 seconds, 20, 40, 77, 45, 48, 70, 110, accompanied by fall in blood pressure.

(2) Injection 5 c.cm. secretin. Fall in blood pressure. Drops at intervals 80, 20, 16, 17, 18, 10, 22, 25, 28, 23, 46, 58 seconds.

(3) Five cubic centimetres of muscle extract injected. Blood pressure slightly raised. Drops at intervals of 82 and 69 seconds.

(4) Injection of mixture of 5 c.cm. secretin and 15 c.cm. muscle extract. Blood pressure fell. Drops at intervals of 62, 21, 17, 21, 23, 21, 22, 28, 29, 35, 38, 45, 50, 59, 72 seconds.

Drops now flowing steadily, at intervals of 60 to 80 seconds.

(5) Five cubic centimetres of placental extract (filtered through 7% collodion) injected. Drops at intervals of 80, 154 and 216 seconds. The blood pressure began to rise 60 seconds after injection, and reached normal level after 400 seconds, reaching maximum in 80 seconds and remaining at this for 100 seconds.

(6) Injection of mixture of 15 c.cm. of placental extract and 5 c.cm. of secretin. Fall in blood pressure 15 seconds after injection, reaching minimum 24 seconds later; then a steady rise to normal, reached 160 seconds after injection; then a steady rise in blood pressure, reaching maximum 280 seconds after injection; then a steady fall to normal, reached 480 seconds after injection. No secretion of pancreatic juice all this time.

(7) Two cubic centimetres of secretin injected. Fall in blood pressure. Drops at intervals of 172 and 216 seconds.

(8) Injection of mixture of 2 c.cm. of secretin and 10 c.cm. muscle extract. Fall in blood pressure. No secretion.

Experiment 60 (October 12, 1917).—Dog No. 49, large male cattle dog: Right jugular vein, left carotid artery, and pancreatic ducts cannulized; vagi intact. Five cubic centimetres secretin injected, and then secretin run in steadily, at rate of 4 c.cm. per minute, from a burette. Now and again the tap of the burette was opened up, and one or two cubic centimetres run through, to ensure that the apparatus was working steadily. There was an initial fall of blood pressure, which was maintained fairly level throughout the experiment. Drops at intervals of 130, 72, 130, 117, 93, 120, 122, 162, and 124 seconds. Forty seconds later injection of 10 c.cm. placental extract, the secretin still being steadily run in. Rise in blood pressure of 20 mm. of mercury. Seventy seconds after injection drop, the drops at intervals of 166 and 306 seconds. Fifteen cubic centimetres placental extract given. Drops at intervals of 120, 171, 117, 120 and 160 seconds. One cubic centimetre secretin run through. Drops at interval of 81 seconds.

Fifteen cubic centimetres liver extract given. Fall in pressure of 15 mm. Hg. for 30 seconds, then rise of 15 mm. Hg., reaching level 270 seconds after injection. Drops at intervals of 600 seconds, 747 seconds, and after a further 540 seconds quarter drop knocked off end of cannula. Blood pressure 60 mm. Hg.. About the same as at the beginning of continuous secretin plateau.

Experiment 61.—Dogs, 52, 53, 54. 55. All males; dogs 52, 53, 55 fox terriers, dog 54 tan Australian terrier. The dogs were fed at about 4 p.m. daily. On the following days each dog received a subcutaneous injection into the loin of 10 c.cm. liver extract, *viz.*, 12, 13, 15, 16, 17, 18 October, 1917, and on 19 and 20 October received 10 c.cm. spleen extract, as the supply of liver extract had run out. All the dogs went off their food from 18th October. Fæces covered, and in some cases permeated, with pink pigment, which was proved to be blood pigment. No. 52, suffering from diarrhœa on October 19, 1917. On October 20, 1917, No. 52 appeared very ill; Nos. 53 and 55 also ill, but not as bad as 52, while No. 54 did not appear to be ill. On October 22, 1917, the four dogs were killed with chloroform. The post-mortem examination revealed the following changes:

52.—Furred tongue. Very marked œdema of the bowel. Stomach injected, especially pyloric end. Duodenum injected. Patches of injection along jejunum. Spleen granular. Liver friable. Contents of rectum liquid and slimy. Numerous small "tubercles" containing soft, cheesy matter, half the size of a grain of wheat, scattered over mesentery and mesenteric attachment of the bowel.

53.—General œdema of bowel. Injection of stomach mucosa and stomach wall, especially at fundus. Marked injection of duodenum and upper foot of jejunum. Ileum fairly clear. Rectum injected in patches, and contains hard fæces. Tongue fairly clean, slightly furred.

54.—Furred tongue. General patchy injection of gastro-intestine, especially duodenum, but not comparable with the condition in the other animals, in

whom the injected patches almost oozed blood. No marked œdema of bowel. Rectum contains hard fæces.

55.—Furred tongue. General œdema of bowel. Injection of stomach, especially near pylorus. Duodenum markedly injected near openings of pancreatic ducts. Some injection of lower end of ileum. Rectum contained very sticky, liquid fæces.

The appearance of the stomach and intestinal mucosæ in dogs 52 and 55 particularly resembled the appearance after the ingestion of neutral oxalates, and almost oozed blood.

Experiment 69.—Male guinea-pig, weight 750 grammes. From October 30, 1917, November 15, 1917 (inclusive), 17 daily injections of 1 c.cm. liver extract given hypodermically. Refused food since November 13, 1917. Died November 16, 1917.

Post-mortem examination showed: Bowel walls very thin throughout whole gastro-intestinal tract, and very easily torn. Marked congestion of, but no exudation of blood into, stomach and upper part of small bowel. Kidneys markedly injected.

Experiment 71 (November 7, 1917).—Left carotid artery, right jugular vein and right submaxillary duct cannulized. Tracing obtained shows: Steady blood pressure tracing, heart rate 74 per minute. Intravenous injection of pilocarpine nitrate, 0.011 gm. in 10 seconds; 10 seconds later drop in blood pressure of 30 mm. Hg. (heart almost stopped), maintained at this level for 45 seconds, and then steady rise to about normal. Rate of heart beat 30 per minute, later widening out to 10 per minute. Saliva pouring from mouth. Injection of 5 c.cm. liver extract. After about 30 seconds saliva ceased running out of mouth. Apparently the heart was dilated or "blocked," as the auricular beat showed on the tracing, and the heart rate only one half of the previous rate. At the end of 350 seconds after injection saliva was running again, and 5 c.cm. of liver extract were given. Flow of saliva stopped. One hundred seconds after injection both vagi cut. No effect on the heart beat. Two hundred and seventy seconds after injection saliva again flowing out of mouth, and heart beat resumed; pure pilocarpine effect (no auricular beat seen). Ten cubic centimetres of liver extract injected gave fall in blood pressure, succeeded by a rise; mouth and eyes dry. A further injection of pilocarpine given; mouth and eyes moist, but no flow of secretion. Two hundred seconds after injection of this latter dose of pilocarpine a small flow of saliva appeared, which was inhibited by an injection of liver extract. This was repeated again. Time relations as before.

Experiment 72 (November 9, 1917).—Dog No. 61, female terrier. Right jugular vein and left carotid artery cannulized. Blood pressure steady; heart beat 90 per minute. Intravenous pilocarpine nitrate, 0.01 gm. Fall in blood pressure of 35 mm. Hg. in 15 seconds, maintained at this for 50 seconds, then steady rise of 10 mm. Hg.. Rate of heart beat 40 per minute 200 seconds after injection, tears pouring out of eyes, and saliva pouring out of mouth, pads of feet and between toes moist. At 500 seconds after injection of pilocarpine, injection of 10 c.cm. liver extract. Rise of pressure of 7 mm. Hg. in 10 seconds, reaching normal in 70 seconds, followed by fall of 10 mm. Hg. in 10 further seconds, and then steadily rising to normal level, which was reached 270 seconds after injection. At 200 seconds after injection mouth quite dry, eyes dry, pads of feet and between toes dry, saliva stopped flowing.

Experiment 73 (November 13, 1917).—Dog 62, male fox terrier. Right jugular vein, left carotid artery and pancreatic duct canulized. Secretin (stock) run in continuously at rate of 5 c.cm. per minute. Drops of pancreatic juice at intervals of 207, 60, 23, 40, 38, 43, 46, 42, and 47 seconds. After 10 seconds injection of 10 c.cm. liver extract (Experiment 66a). Fall in blood pressure of 15 mm. Hg., reaching minimum in 30 seconds and normal 180 seconds after injection. Drops of secretion after 40, 6, 6, 5, 7, 5, 6, 4, 9, 5, 8, 10, 15, 12, 30, 36, 46, 36, 28, 38, 35, 48, 126, 103, 121, 170, 153, 135, 124, 130, 115 and 171 seconds. Thirty seconds later 10 c.cm. burnt muscle extract (extract of 5 gm. burnt muscle) injected. Rise in blood pressure of 10 mm. Hg., reaching normal level after 180 seconds. Drops after intervals (from injection) of 55, 115, 81, 94, 74, 72, 81, 98, 106, 156, 260, 328, 225, 265 and 423 seconds. At 230 seconds later no sign of drop. Injected 10 c.cm. liver extract (66b). Fall in blood pressure of 15 mm. Hg., reaching minimum 60 seconds and normal level 250 seconds after injection. More marked vagal action and not such sudden fall as with liver extract (66a). Drops after intervals of 63, 61, 50, 150, 128, 304, and 356 seconds. Injection of 10 c.cm. placental extract. Blood pressure showed slight fall, succeeded by steady rise, but very slight. Drop after 405 seconds.

During the whole progress of the experiment so far secretin was running in steadily, and the blood pressure was maintained as a plateau at a pressure of about 47 mm. Hg.. Secretin was now stopped, and pilocarpine, 0.01 gm., injected. One drop of pancreatic secretion after 396 seconds, and no further secretion. The animal's mouth was dry.

Experiment 76 (December 11, 1917).—Dog No. 64, black and white male fox terrier. Left carotid artery and right jugular vein cannulized. Blood pressure, 100 mm. diastolic and 140 mm. systolic. Injection of liver extract (Experiment 66a) continuously, at rate of 10 c.cm. per minute. Sixteen seconds after injection blood pressure began to fall, and fell to 60 mm. Hg. in 50 seconds after injection started, at which pressure it remained as a plateau. Seventy-five seconds after injection started the mouth and eyes were dry. Sixty seconds later, injection of pilocarpine nitrate, 0.01 gm., given. Typical heart effect of pilocarpine seen, with fall of blood pressure to 30 mm. Hg., and rate of heart beat as low as one beat in fifteen seconds. The further blood pressure effects need not be detailed here, but up to 600 seconds after the injection of the pilocarpine the mouth and eyes were dry. The animal died of heart failure, with the blood pressure at 98 mm. Hg..

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AN ANALYSIS OF THE MELBOURNE HOSPITAL STATISTICS OF DUODENAL AND GASTRIC ULCERS FOR THE FIVE YEARS, 1912 TO 1917.

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In connexion with an experimental study of duodenal ulcer, I decided to analyse the Melbourne Hospital surgical statistics on the subject for recent years. They are:—

		Duodenal Ulcer.		Gastric Ulcer.		Perforated Duodenal Ulcer.		Perforated Gastric Ulcer.		Others.		Totals.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1912-1913 ..	Total	3	1	2	3	7	2	7	2	3	0	22	8
	Died	0	0	0	0	4	2	1	0	1	0	6	2
1913-1914 ..	Total	5	3	3	2	12	0	6	1	5	1	31	7
	Died	1	0	0	0	8	0	1	1	1	0	11	1
1914-1915 ..	Total	1	0	1	1	9	1	4	3	0	2	15	7
	Died	0	0	0	0	4	0	1	1	0	0	5	1
1915-1916 ..	Total	3	1	7	0	14	2	2	3	1	1	27	7
	Died	0	0	0	0	3	2	1	1	0	0	4	3
1916-1917 ..	Total	4	1	2	4	8	0	2	2	2	3	18	10
	Died	0	0	1	0	1	0	1	0	1	0	4	0
Grand Total ..		16	6	15	10	50	5	21	11	11	7	113	39
Total Died ..		1	0	1	0	20	4	5	3	3	0	30	7

Particulars regarding the condition of the tongue on admission and the general state of the bowels prior to admission were not obtainable from the histories in every case, but those obtained are tabulated in the following table:—

Year.	Tongue.				Bowels.			
	Dry or Furred.		Clean & Moist.		Reuglar.		Constipated.	
	Total.	Died.	Total.	Died.	Total.	Died.	Total.	Died.
1912-1913 ..	12	2	3	0	10	3	5	3
1913-1914 ..	20	7	7	1	13	2	8	5
1914-1915 ..	14	5	7	0	6	0	6	4
1915-1916 ..	24	6	6	0	16	2	7	1
1916-1917 ..	19	1	5	1	11	1	12	1
Totals ..	89	21	28	2	56	8	38	14

Broadly speaking, these figures show a mortality of 24.2% of all cases, 26.5% of males dying, and 18% of females.

Of all cases
36.2% were perforated duodenal ulcer,
21.7% were perforated gastric ulcer,
14.4% were duodenal ulcer,
16.4% were gastric ulcer,
and the rest 11.2% were either perigastric adhesions, appendicitis (faulty diagnosis), or both gastric and duodenal ulcers in the one subject. The figures in the table speak for themselves, but it is interesting to note that the old medical statistics are reversed in regard to the proportion of males to females in gastric ulcer.

The factor of constipation is interesting. Information regarding the history of the previous condition of the bowels was obtained in 94 cases. There was a history of free or regular action of the bowels in 56, and eight of the patients died, *i.e.*, 14.3%. A history of constipation was obtained from 38 patients, and 14 of these died, *i.e.*, 36.8%. The condition of the tongue on admission was noted in 117 cases. In 89 the tongue was furred, dry, or coated, and 21 of the patients died, *i.e.*, 23.6%; while in 28 the tongue on admission was clean and moist, and two of the patients died, *i.e.*, 7%. The condition of the tongue was noted on admission to hospital in 23 patients who died, and only 2, *i.e.*, 9%, had a clean moist tongue. This makes a rather interesting point in prognosis.

The occupational incidence was as follows (the class groupings being, of course, rough):—

Males (1, occupation unstated).

Laborious, 37, *i.e.*, 33% of total, comprised of: Labourer, 22; quarryman, 2; boilermaker, 1; tanner, 1; farmer, 1; butcher, 2; ironworker, 2; smelter, 1; miner, 1; blacksmith, 2; fireman, 2.

Died, 11, *i.e.*, 29.7%, viz.: Labourer, 10; tanner, 1.

Active, 53, *i.e.*, 47.3% of total, comprised of: Steward, 2; soldier, 3; sailor, 3; carter, 1; drivers 5; carpenter, 1; painter, 3; bottlewasher, 1; rubberworker, 1; salesman (including storekeeper and grocer), 4; constable, 1; plumber, 2; fruiterer, 1; upholsterer, 1; fitter, 1; waiter, 2; gardener, 3; fruit-grower, 1; hawker, 1; laundry, 1; engine-driver, 1; shipwright, 1; traveller, 1; boundary rider, 1; plasterer, 1; tramway employee, 1; railway employee, 1; tent-maker, 1; kindler maker, 1; motor mechanic, 1; vanman, 1; brass-finisher, 1; leather dresser, 1; trainer, 1; drover, 1.

Died, 15, *i.e.*, 28.3%, viz.: Carter, steward, fitter, sailor, painter, storekeeper, fruit-grower, bottlewasher, laundryman, engine-driver, shipwright, traveller, cabdriver, gardener, fireman.

Sedentery, 22, *i.e.*, 19.7% of total, comprised of: Clerk, 2; tailor, 2; bootmaker, 3; compositor; accountant; watchmaker; O.A.P.; bandsman; motor-driver; postmaster; business manager; auctioneer; cook; vaudeville artist; clergyman; postal employee; night porter; actor.

Died, 4, *i.e.*, 18.2%, viz.: Accountant; O.A.P.; business manager; actor.

Females (2, occupation unstated), 37.

Domestic or house, 24, *i.e.*, 64.9% of total.
Died, 5, *i.e.*, 20.9%.

Dressmaker, 4; milliner, 1; total 5, *i.e.*, 13.5% of total.
Died, 0.

Others, 8, *i.e.*, 21.6% of total, comprised of: Masseuse; waitress; greengrocer; widow; farming; caretaker; student; boot-machinist.
Died, 2, *i.e.*, 25%, viz.: Waitress, widow.

I wish to place on record my appreciation of the excellent histories of cases kept by Resident Medical Officers, and my thanks to the Medical Superintendent (Dr. McMeekin) and his office staff for the assistance they have rendered me in compiling this record.

THE INDUCTION OF LABOUR AT TERM BY PITUITARY EXTRACT.

By **H. Campbell Wilson, M.A., M.B., B.S. (Melb.),**
Foster, Victoria.

One is loth to add to the already voluminous literature of pituitrin; but there is one sphere of its activity to which I am sure that insufficient attention has been directed. I refer to its use in the induction of labour at or after full term. I have repeatedly been amused and amazed to read dogmatic statements to the effect that pituitary extract has no action on the pregnant uterus previous to the onset of labour, and I observe that the *Therapeutic Gazette* of November, 1917, directs special attention, as novel and important, to an article by Stein and Dover in the *Medical Record* of August 11, 1917, which advocates this procedure.

I first employed the method successfully in July, 1914, and have since adopted it in, I believe, twenty-one cases. Stein and Dover advise small doses of two minims, repeated at short intervals. My practice is to inject a dose of 0.5 c.cm., to repeat it, in case of failure, after intervals which have varied between six hours and three days, and again, if necessary, to repeat it after a further similar interval. I have in no case employed more than three doses. In most instances the first dose in a few minutes produces pains of varying degree, which often subside, but in eight of my 22 cases continued and developed into an ordinary labour, in which the further exhibition of pituitrin rested on the usual footing. In six of the remainder a second dose has been effectual, and in five more the third dose has succeeded. There have only been three failures in the twenty-two cases—a much smaller proportion than Stein and Dover report, and in one of these stricter inquiries instituted after the second dose elicited the fact that the patient had misrepresented her date by three weeks. When this period had elapsed, a single dose was effective in starting labour.

In my earlier cases I used doses of 0.5 to 1 c.cm., but the latter quantity led in one instance to labour beginning and ending, fortunately without ill-effect, within thirty-five minutes from the initial dose. I have never found 0.5 c.cm. produce any undue precipitation.

I have not used the treatment in any routine or systematic way. It has been limited to patients under private hospital conditions, at least several days over term, with normal pelves and normal presentations, and even so mainly to those beginning to fidget over a prolonged absence from their homes and cowyards. There has been only one primipara in the series, partly by chance, partly from a sense of caution which I am inclined to think excessive. I have no experience of its possibilities in abnormal cases; I used it with complete success in one woman with some degree of albuminuria and increasing œdema, who had passed full term and was beginning to cause some anxiety.

Labour once induced pursues its ordinary course. All my cases have done well, and I have seen no ill-effects to mother or child from the procedure, which may well have averted some of the difficulties attendant on prolonged delay.

Speaking with the shamefacedness expected of a medical man who alludes, however distantly, to his personal convenience, I can testify to the relief I have experienced from the anxiety and restraint caused by engagements long overdue, to say nothing of the scowls of moping and nostalgic females. It is certainly easier to induce a woman who on a previous occasion has dragged through weeks of idle waiting, to leave her home for hospital attention, if some assurance can be given that her absence will not be unduly protracted. I think it probable that any patient who makes no response to two doses, may safely be sent home for at least a week.

The procedure, no doubt, like all innovations of any usefulness, will be found capable of abuse, and may be discredited by carelessness or misadventure; but I am convinced that the treatment will settle down into one of established utility.

I have used the word pituitrin throughout, but in a few of my cases infundin has been substituted, without any apparent difference in the result.

Reviews.

EYE, EAR, NOSE, AND THROAT.

A volume purporting to indicate the general progress of the surgery of eye, ear, nose, and throat during the past year has been presented by a group of editors under the form of a collection of abstracts of the principal contributions to journals devoted to those subjects.

Abstracts of many of the original articles have already appeared in *The Medical Journal of Australia*. The books of the series[1] to which this belongs, are stated to be meant primarily for the general practitioner, but it is doubtful if this particular volume will appeal very strongly to him, owing to the specialized nature of its contents.

In the section on the eye the Editor makes a good attempt to condense into 180 pages a review of novel and rare eye work and of the cases reported during the year. He devotes a special chapter on military ophthalmic work. It is essentially a treatise for the discriminating specialist, and will repay perusal. Some of the reports are given in considerable detail; others serve chiefly as a recommendation to the perusal of the article abstracted. The Editor's criticisms are not profuse but are sound. Pathology is merely

[1] The Practical Medicine Series, under the general editorial charge of Charles L. Mix, A.M., M.D., Volume III., The Eye, Ear, Nose and Throat; edited by Casey A. Wood, C.M., M.D., D.C.L., Albert H. Andrews, M.D., and George E. Shambaugh, M.D.; 1917 Series. Chicago: The Year Book Publishers, Melbourne: Stirling & Co. Crown 8vo., pp. 372, illustrated. Price, 7s.

touched on in the course of the reports on the cases. The volume would gain in value if a special chapter were devoted to ophthalmic pathology. Several new surgical operations are described. These necessarily serve chiefly as suggestions, as they have yet to stand the test of time. The diagrams are clear and the reproductions very good.

The section on ear contains 40 abstracts, that on nose and throat 106. More than two-thirds of these are from American journals, which may account for the fact that only two of the number are war-inspired. The Editor has in some instances added a few lines of criticism to an abstract. The section devoted to the internal ear, though short, is the most interesting. Of the more noteworthy contributions the galvanic method of testing the labyrinth is made clear in one article, and the recently devised tonsilloscope, its method of employment and scope of usefulness is discussed shortly, with illustrations. Concerning the suspension method for direct laryngeal work, it is stated that a change of opinion can be seen to be gradually coming in favour of the old laryngostomy procedure.

Irwin Moore's excellent improved instruments for laryngo-fissure are shown, and the technique of endobronchial spraying for asthma elucidated. The Percy method of treating neoplasms of the nose and throat, *i.e.*, destroying the foreign tissue by a sort of cooking, as originally employed in uterine new-growths, is outlined. Encouraging progress is announced in the treatment of malignant growths by radium, practically every case benefiting more or less from its use.

The various sections are conveniently arranged, and a complete index of authors is provided. It is a useful compilation covering a wide field.

THE GARRETT ANDERSON MEMORIAL.

The career of the late Dr. Elizabeth Garrett Anderson embraces the history of the entry of women into the medical profession in Great Britain. Although she was not the first medical woman to obtain registration, it was largely owing to her pertinacity, brilliant achievements and personal influence that the barriers which obstructed women from entering the sacred portals of the medical profession were broken down, one by one. She herself had to exercise extraordinary ingenuity to find means to work through her medical curriculum. Some of the preliminary work had to be done under private tuition. Although she obtained permission to visit the wards of the Middlesex Hospital under the guidance of the Resident Medical Officers, she was eventually requested to leave the Hospital as a protest from a number of male medical students. The Society of Apothecaries were bound by law to permit any candidates, whether male or female, who had complied with the regulations, to submit themselves for examination. No other licensing body was compelled to admit a woman. She passed her final examination for the Licentiate of the Society of Apothecaries in 1865, and five years later she took the degree of Doctor of Medicine at the University of Paris, where she was the first woman graduate. Having had to face such extraordinary difficulties and such illogical prejudices before her own name was entered on the Medical Register, it is scarcely surprising that she should have expended almost limitless energy in the endeavour to break down the obstacles standing in the way of women as medical practitioners. That she was successful in converting one University after another, and one corporate body after another, is familiar history.

The late Dr. Garrett Anderson left not only this valuable legacy to her sisters, but added another of great value. During her early association with St. Mary's Dispensary she laid the foundation for the New Hospital for Women, an institution which now ranks among the best-managed hospitals in the Empire. It is therefore fitting that a permanent memorial should be established as a recognition of the life work of this pioneer. We learn that on March 14, 1918, a meeting will be held in London, under the presidency of Her Royal Highness Princess Louise, for the purpose of organizing an appeal for £50,000 to provide an Empire memorial to Dr. Garrett Anderson. It is proposed that the subscriptions should be limited to women who are earning their own living, and that the memorial should take the shape of an endowment of 50 beds at the great Hospital for which she worked during 20 years of life.

Public Health.

NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending February 16, 1918:—

	Metropolitan Combined District. Cs.	Dths.	Hunter River Combined District. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Enteric Fever	16	0	4	0	23	2	43	2
Scarlatina	6	0	5	0	9	0	20	0
Diphtheria	34	1	8	0	29	0	71	1
C'bro-Spl. Menin.	1	0	0	0	5	2	6	2
Poliomyelitis	0	0	0	0	2	0	2	0
*Pul. Tuberculosis	18	8	0	2	0	0	18	10

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba Municipality.

VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the fortnight ending February 17, 1918:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Diphtheria	77	2	66	0	143	2
Scarlatina	30	0	37	1	67	1
Enteric Fever	4	2	32	3	36	5
Pulmonary Tuberculosis	36	9	12	5	48	14
C'bro-Spl. Meningitis	1	—	4	—	5	—
Poliomyelitis	33	—	10	—	43	—

SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, during the fortnight ending February 9, 1918:—

	Adelaide. Cs.	Dths.	Rest of State. Cs.	Dths.	Totals. Cs.	Dths.
Diphtheria	2	1	41	3	43	4
Pulmonary Tuberculosis	1	4	10	9	11	13
Scarlatina	0	0	13	0	13	0
Enteric Fever	0	0	5	1	5	1
Erysipelas	1	0	3	0	4	0
Morbilli	0	0	2	0	2	0
Pertussis	0	0	4	0	4	0
Puerperal Fever	0	0	1	0	1	0
C'bro-Spl. Meningitis	0	0	1	0	1	0

QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the fortnight ending February 16, 1918:—

Disease.	No. of Cases.
Diphtheria	86
Pulmonary Tuberculosis	26
Scarlatina	3
Enteric Fever	37
Erysipelas	8
Puerperal Fever	1
Ankylostomiasis	1
Cerebro-spinal Meningitis	1
Bilharziosis	1
Poliomyelitis	1

WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the four weeks ending February 9, 1918:—

	Metropolitan. Cases.	Rest of State. Cases.	Totals. Cases.
Enteric Fever	21	8	29
Diphtheria	32	17	49
Scarlatina	6	1	7
Pulmonary Tuberculosis	28	11	39
Erysipelas	1	0	1
Hæmaturia	2	0	2
Beri Beri	0	2	2
Septicæmia	0	1	1
Puerperal Fever	1	0	1

The Medical Journal of Australia.

SATURDAY, MARCH 2, 1918.

The Interests of Absent Practitioners.

When war broke out and medical practitioners offered their services with the Expeditionary Forces, it was realized that the sacrifice they were making was not limited to the dangers of warfare. In responding to the call, these men had thrown aside for the time their means of existence and trusted to chance and the integrity of their colleagues at home that they would find the greater part of their practices when they returned. It was therefore a self-evident proposition that those who remained at work in Australia, should pledge themselves to look after the interests of their loyal colleagues serving overseas. For the men in private practice, there were no salaried positions to keep open until their return. In some cases a *locum tenens* was engaged to keep the practice together, often at an almost prohibitive price. Others trusted their neighbours and made arrangements whereby the latter should perform the work and retain part or the whole of the fees earned. Others again rushed off without any further thought for the morrow. The several Branches of the British Medical Association formulated promises in the shape of resolutions to the effect that the members would respect the claims of the men on active service and would endeavour to restore their patients to them, when they returned. After a time the freshness of the situation wore off. The number of those serving in the Australian Imperial Force increased until over one-third of the profession had left our shores. The increased work imposed on some of those who remained behind, at times became a burden and the temptation of making hay while the sun shone, proved too strong for some members. Complaints have reached our ears that in many instances the compact has not been kept, either in the spirit or even to the letter. It is true that the majority of the practitioners in Australia have kept the interests of their absent colleagues steadfastly before their eyes and have refused to improve their own positions at the cost of the men on active service. But a few have not been loyal, and by disregarding the promise freely given in 1914, have brought a taint upon their stronger and more upright fellow practitioners. In these circumstances the Federal Committee, at its recent meeting, determined that members should be given a guidance. General Fetherston set up in memorandum form a mode of procedure which should govern the relations between a medical practitioner in the Commonwealth and his colleague absent on active service on the one hand, and the patients of the latter on the other. It is regrettable that this should have become necessary, but the facts are undisputable. The principle was established over three and half years ago, and in the interval it was left to the sense of honour of the men who were attending the patients of absent practitioners, to find the proper course to pursue. The Federal Committee now suggests that the man who does the work, should receive a reasonable amount of the remuneration, and that when the practitioner returns from active service, he should have restored to him all those patients who formerly were in the habit of consulting him. It is unlikely that any of the six Branches will wish to modify these proposals. Some, however, may wish to go farther, as indeed they have already done. Not only should the practitioner's patients be restored to him on his return from active military service, but the fact of his absence should not rob him of that recognition of his advancement in the profession which becomes the lot of those who work hard and well. In South Australia and in certain other States no permanent public appointment will be made until those who have gone on active service, have returned. These men, it is felt, should have the privilege of applying for hospital and other public appointments that may have become vacant since August 4, 1914. The positions are filled temporarily and the incumbents necessarily obtain some advantage. When all have returned the most suitable candidate must of necessity be appointed to the vacant position. It would be manifestly unfair and opposed to the public interest that a returned man should be

placed in a coveted position, just because he is a returned man.

There are some who hold that preference should be given to men who have been on active service abroad whenever a military position requires filling. It should be remembered that in this connexion the safety of the Empire must be paramount. It is therefore necessary that the choice of medical officers for all military positions should fall on the men best equipped for the duties to be performed. The military authority is unlikely to sacrifice efficiency, in order that those who have served in another capacity, may reap a benefit. In all other regards the medical practitioner who has given up practice and office in the country's cause, should have his interests safeguarded by the whole profession within the Commonwealth. All that is needed is to remind members of the promise given long ago. In a matter of honour, the members of the medical profession will not be found wanting.

COMPULSORY ARBITRATION.

On February 15, 1918, the Premier of Victoria, Mr. Bowser, and the Attorney-General, Mr. Agar Wynne, met Professor Berry, President of the Victorian Branch of the British Medical Association, Mr. C. Stanton Crouch, Secretary, and Messrs. S. Mauger and Knight, President and Secretary of the Friendly Societies' Association of Victoria, and discussed the difficulties which have arisen between the friendly societies and the medical profession. At this conference, for which the Premier and not the British Medical Association was responsible, the suggestion of arbitration was again brought up and urged by the representatives of the friendly societies and by the Premier. The Council of the Victorian Branch considered these proposals at a special meeting held on February 18, and resolved:—

> That this Council regrets that it is unable to alter its decision on the question of arbitration and refers the Honourable the Premier to the letter of February 9, 1918, wherein the Council set out its reasons for declining to agree to arbitration.

The Council drafted a letter to be sent to the Premier. The text of this letter will be found on another page of this issue.

In the *Age* of February 20, 1918, a note has appeared setting forth the views of Mr. S. Mauger on the situation. He is stated to have reiterated the opinion that the position in New South Wales was not comparable to that in Victoria, because the friendly societies in the former State were handsomely subsidized by the Government. We publish elsewhere an analysis of the effect of the subvention grants on the medical benefit in New South Wales. It will be seen that the subvention does not affect male members under the age of 65 years, or female members under the age of 60 years. Translated to the conditions obtaining in Victoria, the difference between a 17s. contribution which the friendly societies have offered, and the 20s. contribution which the Victorian Branch claims as just and necessary, when applied to these aged members, would amount to approximately £650. Divided among the 160,000 members of the Victorian friendly societies, the increase would represent 1d. per member per annum. Further comment is unnecessary.

Mr. Mauger attempts to place the responsibility for the arrest of "the progress and extension of the friendly societies" on the shoulders of the medical profession. If the progress and extension of the friendly societies depend on a system of sweating the doctors, the sooner this progress and extension is stopped, the better for the community. There is, however, no evidence that the granting of the reasonable demands of the Victorian Branch would have the result of reducing the membership of the friendly societies, save in so far as those persons are concerned whose incomes are higher than the limit imposed. Contract practice, as we have repeatedly pointed out, is not intended for rich people, and the medical profession is amply justified in wishing to exclude from medical benefit all persons who can afford to pay full fees. The medical profession recognizes the value of the friendly societies to the community. They enable persons of small means to draw regular amounts of money during sickness, to receive medical attendance and medicines without having to pay extra for them, and to meet the expenses of burial. Provident persons will always seek the advantages of insuring themselves against the cost of sickness and death. If the doctors withdrew their concessions to persons of small means,

the friendly societies or other insurance societies would have to deal with the question of medical attendance and medicines as they do with the question of funerals. Actuarians would probably find that an annual premium of nearly £10 would be needed to cover the cost of medical attendance at full private fees. Undertakers do not reduce their charges for burials to one-tenth of the normal rate, for the members of friendly societies. The other alternative would be to divorce the arrangements for medical attendance from those of the other benefits. The Victorian Branch is at present considering various methods of providing persons of small means with medical attendance at contract rates. The other branches of the activities of the friendly societies would continue as at present, if some form of direct medical contract practice were universally introduced. It will thus be seen that the medical profession need not concern itself with the question of the progress and expansion of the friendly societies, provided that it does not lose sight of the necessity of making some arrangement with the wage-earner, by means of which he can secure medical attendance without financial embarrassment.

Why should the Victorian Branch of the British Medical Association submit to arbitration? Clearly they are justified in refusing to bow their heads to the findings of political tribunals, seeing that they are prepared to make great concessions to the less well-to-do section of the community. Parliamentarians and Governments may wish to obey the dictates of the friendly societies, which comprise large numbers of voters. But they cannot compel a single medical practitioner to give away his knowledge and skill at terms which he considers unreasonable and unjustifiable.

TUBERCULOSIS IN THE ARMY.

It is a frequent boast that disease incidental to the present war has been so infrequent as to constitute a triumph for medical science. Allowing that triumph is a relative term and in this particular connexion means that much more has been effected by preventive measures than has been achieved in past wars, there may be some justification for the claim. Enteric fever has disappeared to a very large extent, thanks to a systematic prophylaxis. Tetanus has been largely controlled. On the other hand, the disease incidence has not actually been low, and students of preventive medicine must still confess ignorance and limited capability in combating many of the infective processes. A lack of a well-organized service of prevention and accurate diagnosis led to an unnecessary spread of dysentery and other enteric affections in Gallipoli. Moreover, the war has been characterized by certain unwonted conditions. Trench life, the extraordinary violence of the bombardment and of the firing, the employment of *Feuerwerfer*, of poisonous gases and of hand bombs, and lastly the extension of the war into the air have contributed to a hitherto unexperienced strain on the soldiers. Great and continuous strain spells diminished resistance. The normal protective processes of healthy men become impaired when they are forced to live underground, in dirty water and mud. It is therefore not surprising that in France close on 200,000 soldiers have been discharged from the Army on account of active tuberculosis. From the work of Horton-Smith Hartley we learn that, while the frequency of tuberculosis among the British troops has been less than among the French, the problem of the consumptive soldier is a very real one. Wise provisions have been made to improve the chances of recovery of those who have been discharged for this reason. It appears that the Americans are profiting by the experience of other nations and are endeavouring to reduce the wastage from tuberculosis to a minimum. Dr. Edward O. Otis explains the method adopted to achieve this end.[1] It is known that the majority of men invalided on account of tuberculosis were suffering from latent or inactive lesions on enlistment. In order to exclude as many men as possible who might break down under the conditions of modern warfare, every recruit in the New England National Guard, numbering about 30,000, was examined by a special staff of medical officers. This task of applying an expert examination, having for its object the detection of active or latent tuberculosis, has been placed in the hands of Colonel Bushnell, formerly the head of the United States Army Sanatorium. His staff has been recruited from among those who have had special hospital, sanatorium or dispensary experience. Definite regulations have been drawn up for the guidance of these medical officers. The presence of an actual tubercular lesion is held to necessitate rejection or discharge. In all doubtful cases the man is required to submit himself for a second examination and before anyone is definitely rejected, three members of the tuberculosis staff must be agreed as to the diagnosis. In the pressure of work, it has not been possible to have recourse to a röntgenological examination or to a tuberculin test. Dr. Otis is of opinion that in the hands of experts, a physical investigation will form as reliable a guide for practical purposes as is necessary for military purposes. If there is any doubt as to the nature of a pulmonary lesion, associated with physical signs, the sputum can be examined for tubercle bacilli. It is obviously waste of time to examine the sputum in the absence of physical signs in the chest. This movement is undoubtedly a step in the right direction. It is true that it involves a

[1] *The Boston Medical and Surgical Journal*, January 10, 1918.

special examination of every recruit, but the gain to the country in reducing the number of potential consumptives in the fighting force is great. A further gain would be obtained if every soldier who had been in the trenches for three months, were subjected to periodical examinations by experts, so that the conversion of latent to active lesions might be detected as early as possible. That this would be of advantage to the country as well as to the individual, scarcely needs to be pointed out.

THE PROBLEM OF THE PROSTITUTE.

We have recently laid great emphasis on the necessity for the institution of means to educate the medical profession, the legal profession and the community in regard to the psychology of the mentally deficient. Our Universities should contain special departments, under the care of a Professor, for the better teaching of psychology and psychiatry. More experts should be trained in the medical profession in order that the common and serious deflexion from ethical behaviour which has its origin in arrested mental processes, may be recognized when it exists before any serious harm accrues either to the individual or to other members of the community. In support of our contentions we find an important study of the immoral woman as seen in court by Dr. V. V. Anderson, the Medical Director of the Municipal Court of Boston.[1] In his excellent analysis of the condition of an unselected series of immoral women, this author is able to demonstrate that no less than 49% of the women had a mentality corresponding to that of children up to the age of twelve years. Forty-seven in the hundred were found to have the mentality of children between the ages of 9 and 12 years. In other words, practically one-half were persons at once recognizable to the expert as low or medium grade defectives. In addition there were 26 in the hundred whose mental state was that of a child between 12 and 16 years, or in other words, over one quarter of these women were high-grade imbeciles. Judged from another standpoint the mentality of the women was normal in only 20. In 18% epilepsy, alcoholic degeneration, drug deterioration, psychopathic tendencies and psychoses were determined in the mental diagnosis. Grafted on this disastrous equipment, he found a venereal infection in 61%. If his analysis holds good for the usual type of immoral woman the world over, the need for immediate and energetic action cannot be denied. According to Dr. Anderson's estimation, 27% were in such good physical and mental condition as would enable them, with assistance, to return, under probation, to the community. Twenty-five in the hundred were, from a mental point of view, capable of adjusting themselves under well-planned probationary supervision, but were physically in need of urgent medical treatment. Twenty-nine in the hundred were suffering from such mental handicaps as to render it unlikely that they would conduct themselves normally, unless under very strict supervision, while 19% were in such bad mental and physical condition as to render any attempt at outside adjustment inadvisable. These individuals, he held, should be permanently controlled or at all events kept under detention for prolonged periods.

[1] *The Boston Medical and Surgical Journal*, December 27, 1917.

MARGARINE FOOD VALUES.

Since the opening years of the present century the theoretical explanation of the nutrition of the animal body has undergone much change. The fundamental principles on which the feeding of man and animals is based, have been broadened. The simple requirements of the physiologists of the nineteenth century are recognized as insufficient. No longer is it considered enough to supply a minimal weight of protein and a particular number of calories in the form of protein, fat and carbohydrate. In addition, the proteins must contain an adequate quantity of certain amino-acids, the constituents of the ash must be present in proper proportions and the ration must provide the hormones controlling growth and maintenance. Some authorities, indeed, assert that even more elaborate precautions must be taken in selecting a diet if it is to be satisfactory in every respect. These physiologists believe that their experiments demonstrate that a whole series of substances, not yet identified by chemical analysis, play some part in regulating the metabolic processes within living cells. The absence of any of these materials from the food occasions some form of disease; thus deficiency in some particular leads to the occurrence of scurvy, in another to pellagra and in others to rickets. All those who have done research work on these problems, however, appear agreed that polyneuritis follows the absence of the water-soluble vitamine.

Evidence is accumulating that another vitamine, soluble in fats, is concerned with the growth of the tissues. As long ago as 1904 Mori, in Japan, called attention to eye troubles in young children during times of famine. He observed over 1,400 children, aged from 2 to 5 years, who were affected with xerosis of the conjunctiva and with keratomalacia, often terminating in blindness. The disease was confined to those living on a vegetable diet. Chicken liver and eel fat were efficient as curative agents. Mori ascribed the condition to fat starvation. Bloch described cases of necrosis of the cornea among children fed upon skimmed milk in Copenhagen. The work of McCollum and Davis and of Osborne and Mendel, published in 1913, made it evident that growth could not be continued for any long period in the absence of some substance present in butter fat. Many other observers have confirmed this fact for a number of animals. Animals, starved of this fat-soluble vitamine frequently suffer from eye troubles. It has been suggested that xerophthalmia is due to the absence of this fat-soluble vitamine from the diet.

The necessity of economy in Europe in choosing a diet at the present time has lead to much more at-

tention being paid to investigations upon nutrition than would otherwise have been the case. Recently W. D. Halliburton and J. C. Drummond have made a study[1] of the different substitutes for butter in regard to these fat-soluble vitamines. These substitutes for butter may be arranged into three classes, the animal fat margarines, which are all of high price, the vegetable oil margarines, many of which are cheap, and the nut butters, which are prepared in small quantities for vegetarians. Of the animal fat margarines, that prepared from beef fat and known as oleo-oil, is chiefly found in British markets. Mutton fat, lard oil and horse fat are also used as the basis of this class of food. The vegetable oil margarines are mainly derived from cocoanut oil. Arachis oil or peanut oil is also extensively employed and, to a less degree, maize oil, sesame oil, cotton-seed oil and shea oil. Although the catalytic reduction or so-called hydrogenation of fats has been introduced as a commercial process whereby the liquid oils can be rendered solid or semi-solid as desired and unpalatable vegetable and fish oils can be converted into odourless, edible fats. Margarines containing these hydrogenated fats as a basis, do not appear to have yet reached British markets. Many previous investigations have proved that margarines are as easily digested as butter, and that the fuel-value of the two articles are practically identical. Such investigations have not dealt with the possible presence of a food hormone. The experiments of Halliburton and Drummond have been carried out on rats. These studies show clearly that the fat-soluble accessory substance is contained in beef-fat and in the oleo-oil, made from it, and is present in the margarines prepared from such a basis. Such margarines are nutritively equivalent to butter. Cocoanut oil, arachis oil and other vegetable oils contain little or none of this vitamine. Margarines, prepared from vegetable oils, have not, therefore, an equal nutritive value to that of butter. Nut butters are also deficient in the food hormone. Lard substitutes, prepared from vegetable oils, are equal to lard in nutritive value, both alike being destitute of the fat-soluble vitamine.

In considering the dietetic importance of the results of these experiments it must be remembered that the fat-soluble vitamine is also present in milk and eggs. The amount of food accessory needed in the daily ration is small, so that, on a varied diet, the deficiency in the nutrient value of one component is compensated by the properties of another. Those who are able to buy fat meat, eggs and milk can use vegetable oil margarines without any adverse effect on their health. The poorer classes who may be unable to buy the higher-priced margarines should utilize beef dripping as much as possible, and should not eat the cheap vegetable oil margarine unless they can obtain an adequate quantity of milk. In this connexion it may be noted that Reiter has put forward a process for enriching the vitamine content of margarines. It is hoped by this process to make the vegetable oil margarines as suitable for food as butter.

[1] *Journal of Physiology*. Vol. LI., p. 234, September, 1917.

Vital Statistics.

SOUTH AUSTRALIA.

The returns of the births and deaths registered in South Australia, which are issued month by month, will be dealt with each quarter, in order that space may be saved. The returns published officially in the various States contain more information than can be reproduced in this journal. Members are therefore informed that, should they require any further details concerning the vital statistics in any of the States in the Commonwealth, these details will be gladly supplied to them by the Editor on application.

During the fourth quarter of the year 1917 the number of births registered in South Australia was 2,563. This brings the total for the year to 11,326. The number of births is considerably lower than that registered during the corresponding quarter of the preceding five years.

The birth-rate for the quarter was equivalent to an annual rate of 23.72 per 1,000 of population, while the rate for the whole year was 26.23.

The number of deaths registered during the quarter was 1,063, and the total number of deaths registered during the year was 4,365. The death-rate for the quarter was 9.74, which is a lower figure than the average for the corresponding quarter of the preceding five years. The death-rate for the whole year was 10.1 per 1,000 of population. Of the deaths registered, 124 were of infants under one year of age. The infantile mortality was therefore 48.38 per 1,000 births, a figure that is still much too high, but that compares favourably with the infantile mortality figures in other parts of the world.

Diseases of the cardio-vascular system were directly responsible for 216 deaths, or 20.3% of the total. From the point of view of preventive medicine, these figures are very significant. We have frequently called attention to the need of systematized research into the causes of arterial degenerations and other destructive processes. The mere assumption that the toxins of various bacteria lead in some mysterious manner to pathological changes in the cardio-vascular system scarcely contributes towards their prevention. It is frequently stated that metabolic poisons are the causal agents of some of these arterial diseases. Even those who use the term do not seem to have any conception what it means.

Of the infective processes, tuberculosis is undoubtedly the most fatal. There were 105 deaths due to the various forms of tuberculosis, including 80 from pulmonary tuberculosis. Pneumonia was responsible for 60 deaths, diarrhœa and enteritis for 32, diphtheria for 10, dysentery for five, erysipelas for two, non-puerperal septicæmia for two, influenza for two and pertussis for one. To the list of infective processes should be added meningitis, which caused five deaths, acute articular rheumatism, which caused five deaths, and acute nephritis, which caused six deaths.

The number of deaths from cancer was 97. This represents 9.1% of the total number of deaths. It will be noted that diseases of the cardio-vascular system, tuberculosis and cancer together, are accountable for over 40% of the total number of deaths. There were 17 deaths from diabetes and 45 from Bright's disease. Leukæmia caused five deaths. The deaths from puerperal septicæmia numbered six.

From the separate tables given dealing with the vital statistics of the city of Adelaide, it appears that 240 births were registered in the city during the quarter. The uncorrected birth-rate, expressed as an annual rate, was 24.2 per 1,000 of population. The number of deaths registered in the city of Adelaide, exclusive of those which took place in public institutions of persons not usually resident in the city, was 160. The corrected death-rate, expressed as an annual rate, was 16.1 per 1,000 of population.

A meeting of the Committee of the Newcastle Hospital was held on February 14, 1918, when it was resolved that the Senior Medical Officer, Dr. N. Zions, should be appointed Medical Superintendent. The Board placed on record its appreciation of Dr. Zion's administrative ability. This appointment will necessitate a re-casting of some of the by-laws. The Committee further determined to reconsider at the end of the current year the question of the remuneration of the Medical Superintendent.

Abstracts from Current Medical Literature.

SURGERY.

(75) Gunshot Wounds of the Chest.

B. G. Moynihan (*Surg. Gyn. and Obstet.*, December, 1917) discusses the subject of gunshot wounds of the lungs and pleura. He takes Elliott's estimate of the mortality of these cases at field ambulances and casualty clearing stations as 20% to 25% of all chest cases passing through their hands; 10% of the patients die early from shock or hæmorrhage, and 15%, later on, of sepsis. Injuries from rifle bullets are either very grave, if the large vessels are involved, or comparatively benign, if only lung tissue is traversed. High explosive shells, however, cause jagged and extensive wounds, and carry in portions of the clothes, causing infection. The two main causes of death are hæmorrhage, which is generally fatal in the first 28 hours, and sepsis, which may be fatal from the seventh day onward. Hæmorrhage by *contrecoup* in the upper lobe of the lung is not uncommon when the lower lobe is severely injured, and the opposite lung itself not infrequently contains scattered hæmorrhages. Where the hæmorrhage into the pleura is not immediately fatal, it generally originates from the lung tissue itself, and not from the intercostal vessels, as was formerly believed. The amount of blood extravasated may be as much as 2.25 or 2.85 litres. The infection is very frequent, and the organisms most commonly associated are the colon bacillus and the gas gangrene bacillus. As regards treatment, immobilization is an absolute essential. Immediate intervention may be required in order to close an open thorax, to suture a lung in grave hæmorrhage, or for the relief of surgical emphysema. When hæmothorax is present, and there is no urgent symptom, intervention may be postponed for some days. At the end of a week, aspiration has a beneficial effect. In the treatment of an infected hæmothorax, Moynihan follows the lead of Tuffier in applying the Dakin-Carrel principles. Small tubes are placed in the pleural cavity, and a little loose gauze packed into the wound, and Dakin's fluid is instilled regularly in the usual manner. In the extraction of bullets and foreign bodies, he follows the procedure of Pierre Duval. A curved incision is made along the fourth rib in front, the fibres of the *pectoralis major* are split, and those of the *minor* separated from the rib. The rib is then subperiosteally removed for 12 to 15 centimetres, and the pleura carefully separated above and below. The pleural cavity is opened into in the line of the rib, and the hand introduced. Abdominal retractors are useful during this manœuvre. Adhesions are gently separated and the collapsed lung drawn up into the wound and surrounded by warm sponges wet with saline solution. If a projectile is present, it is sought and removed and the hæmorrhage controlled by deep sutures passed through the lung. The pleura is carefully sutured. This is probably the most difficult part of the operation. The rest of the wound is closed so as to seal the thorax hermetically, after which the chest is aspirated to draw off the enclosed air.

(76) Peritoneal Adhesions.

J. Frank Corbett (*Surg. Gynec. and Obstet.*, August, 1917) publishes the results of his experiments on the causation of peritoneal adhesions. He considers that pure aseptic trauma plays but an insignificant part in the production of adhesions, but emphasizes the great importance, ætiologically, of trauma added to infection. Demboasky came to the same conclusion after using an aseptic tooth brush to traumatize the peritoneum of dogs. E. P. Quain discovered, however, that if the intercostal nerves are divided on one side, aseptic trauma is followed by adhesions, suggesting a nerve influence in their prevention. Catgut is acquitted by Corbett of the charge of producing adhesions. As regards surgical technique, the value of rapid operating lies in the fact that drying from prolonged exposure has a deleterious effect. Dry gauze left in the tissues and drainage tubes are productive of adhesions. Crile and Carrel have indicated the importance of delicate handling, and the avoidance of unnecessary gauze manipulations. Perfect hæmostasis is most essential, and hæmatomata of the mesentery are usually followed by adhesions. In dealing with the important rôle played by infection, Corbett points out that some effort should be directed against this in infected cases. Little has been done as regard chemical disinfection. Iodine in 2% solution did not regularly produce adhesions, but the stronger solutions always did. All strong antiseptics do harm and intensify the peritonitis. Ether, alone, is a possible exception and its use, following the escape of infected material, does seem to lessen the subsequent adhesions. It is difficult, however, to substantiate its claim as an antiseptic of sufficient power to destroy infection, since test tube experiments by Topley showed that it required three hours contact with ether vapour to destroy *bacillus coli communis* and five hours to destroy *staphylococci*. Ether poisoning and pneumonia sometimes result and 85 c.cm. should be considered the maximum dose for the peritoneal cavity of an adult, and 15 c.cm. in children under two. Postural treatment may control the formation of adhesions, so as to obtain freedom from pain in the standing position. Free grafts of omentum, when transplanted, give up their fat and become connective tissue, but adhesions about the graft invariably occur. Their use in the presence of infection is undesirable owing to the likelihood of sloughing in mass. Nevertheless, omental grafts seem superior to Cargile membrane and Prime's celloidin.

(77) Injuries to Peripheral Nerves.

B. G. Moynihan (*Surg. Gyn. and Obstet.*, December, 1917) classifies the nerve injuries of the war as follows: (1) injury by the contraction of fibrous tissue following lacerated wound; (2) hæmorrhage into the nerve without actual contact with the missile. This leads to the "central neuroma"; (3) partial severance of the nerve resulting in the "lateral neuroma"; (4) complete severance of the nerve with later the "terminal neuroma." The musculo-spiral and the ulnar nerves are the most frequently injured, those next in order of frequency being, the median, sciatic and external popliteal nerves. Operation is considered as indicated if there is complete division, incomplete division with arrested progress, or persisting neuralgia. Operation is deferred, of course, while there is continued progress, and it is also postponed for one month after the closure of a wound of the soft parts and for two to three months after the closure of a wound in which there has been injury to bone. At the operation asepsis must be rigorously observed, and clumsy dissection or bruising studiously avoided. A tourniquet is considered inadmissible. The torn ends are sutured with fine catgut passing through the sheath only, and axial rotation guarded against. To prevent tension it may be necessary to dislocate the nerve from its accustomed bed, or to flex the neighbouring joint. The advantage of Cargile membrane, fat or fascia as insulators, Moynihan considers extremely doubtful. He condemns nerve anastomosis, the turning down of a nerve flap, and the bridging of the gap with catgut. Tendon transplantation, where nerve union is impossible, is found particularly useful when the musculo-spiral nerve or the posterior interosseous nerve has been affected. Posturing after operation in the "relaxation position" is an essential, and the "cock up" splint of Robert Jones is recommended in injuries to the musculo-spiral nerve below the supinator branch. Massage and electrical treatment are begun a fortnight after operation. As regards results, recovery of the musculo-spiral has begun nine weeks, and of the ulnar fourteen weeks after union. The importance of the time elapsing between injury and operation is questioned, inasmuch as Captain Richardson has united the ends of a cut ulnar fifteen years later, and signs of recovery were apparent four months afterwards.

(78) Syphilis of the Stomach.

W. M. Downes (*Surg. Gynec. and Obstet.*, October, 1917) discusses the clinical signs and treatment of syphilis of the stomach. It may be congenital or acquired, and may vary from a diffuse gastritis with submucous infiltration to a gummatous involvement of all the coats. The pain lacks the period-

icity of simple ulcer, and is not influenced by food. Persistent vomiting may occur, but hæmorrhage is not common. Rapid and extreme loss of weight with low total acidity and absence of free hydrochloric acid was present in five out of eight cases. The history of lues in the presence of unusual symptoms in a gastric case that has not benefited by dieting should suggest the diagnosis. The skiagram may reveal persistent and unusual deformity. Vigorous anti-luetic treatment is indicated, with gastro-enterostomy in those cases where cicatrization of the syphilitic ulcer has resulted in pyloric obstruction.

GYNÆCOLOGY AND OBSTETRICS.

(79) Sacro-Iliac Joints in Gynæcology.

J. C. Litzenberg (*Journ. Amer. Med. Assoc.*, November 24, 1917) is of the opinion that many cases of backache submitted to endless local gynæcological treatment and useless pelvic operations are really due to disease in the sacro-iliac joints. The anatomy of the joints, he asserts, is a subject of contention, some considering that they are true joints, having all the common joint structures, others averring that the articulation is a synchondrosis immovable except under pathological conditions. It is quite certain that there is demonstrable relaxation during pregnancy, for instance, as proved by the inlet and Walcher positions and the outlet by the exaggerated lithotomy position. Results of the relaxation in pregnancy vary from simple backache, or even less than a definite ache, merely slight discomfort, to the inability to move without the most intense suffering. The author asserts that he has often seen a properly fitted combination maternity corset, abdominal support, and sacro-iliac belt change an irritable neurasthenic, bemoaning her pregnant state, into a happy, contented, prospective mother. The attempt to restore equilibrium during the pregnant state necessarily continued for a number of months often results in sacro-iliac or muscular strain. In his series of 500 cases 10% suffered enough to complain from this strain; he believes that if he enquired more carefully, it would be 20%, and for these reasons he recommends every woman to wear a proper abdominal, back, and pelvic support. Although he admits that operation for retroversion frequently rids the patient of pain, the pelvic symptoms are often entirely due to sacro-iliac inflammation or relaxation. It is, therefore, always necessary to determine the primary trouble and address the treatment to it. When the distribution of the sacral plexus and the proximity of some of the branches, especially the lumbar cord, to the joints are studied, it is not difficult to understand how sacro-iliac disturbances could result in pain referred to the pelvic organs. He regards that much of the backache during menstruation is from the sacro-iliac joints, owing possibly to congestion or relaxation at this time; wearing a sacro-iliac belt during menstruation often gives great relief. The principles of treatment are simple, calling in the main only for immobilization of the joints by adhesive plasters, sacro-iliac belts, or special devices. In the simple backaches of pregnancies or gynæcology he prefers to use adhesive straps or an inelastic belt for diagnostic purposes, to be worn until the maternity apparatus is made. It should be tightly buckled about the pelvis, over the ordinary corset.

(80) Radium in Carcinoma of the Cervix.

E. H. Risley and G. A. Leland (*Boston Med. and Surg. Journ.*, December 29, 1917) place on record the experience gained at the Huntingdon Hospital during a period of four years in the treatment by radium of cases of carcinoma of the cervix. They divide their cases into five groups. In the first group the radium was utilized for the purpose of reducing the size and fixation of the tumour, in order to render the chance of total extirpation more promising. There were five cases in this group. Of these five patients, three were alive. One of them had remained without symptoms for 18 months after the operation, and another for 12 months. In a third patient local recurrence had taken place. The remaining two patients had died. In the second group the radium was applied prophylactically, after a radical removal of the mass. There were five patients in this group. Three were alive, one patient had been lost sight of, and one had died. In the third group the radium was applied for recurrence following operation. There were 37 cases, 16 after Wertheim's operation and 21 after hysterectomy of an unknown type. Three of the patients could not be traced, eight were alive without disease. In two the recurrence was doubtful, and in five it was definite. Twenty of the patients had died. In the fourth group the radium was employed for recurrence after curettage or cauterization. There were 21 patients, of whom five had not been traced. One was alive without recurrence and four were alive with recurrence. Fifteen were dead. In the fifth and last group the radium was employed in inoperable cases. There were 22 patients. Three of these were alive 22 months after the treatment had been applied. Eighteen were dead, and one had been lost sight of. It thus appears that, of the total number of patients, five were free from disease from six to eighteen months after the application of the radium, 21 were alive, seven had not been traced and 62 were dead. They point out that in the inoperable cases the radium checked hæmorrhage, stopped, to a large extent, foul discharge and controlled pain in many cases.

(81) The Treatment of Leucorrhœa.

F. P. Block and T. H. Llewellyn call attention to the experience made by the majority of gynæcologists that obstinate cases of leucorrhœa are extremely difficult to cure (*Journ. Amer. Med. Assoc.*, December 15, 1917). They point out that, in the normal healthy adult, the reaction of the vaginal secretion is acid. This acidity is caused by Doederlein's bacillus. In chronic leucorrhœa in adults the secretion is alkaline, save in senile cases. The authors therefore sought a means for changing the reaction. For this purpose they employed lactic acid bacilli. After some experimentation they determined to use tablets on which one or two drops of sterile water had been placed, so that their consistency was that of a cream cheese. The tablet was then inserted into the upper part of the vaginal canal by means of forceps. In vulvo-vaginitis of children the lactic acid bacilli had no effect if gonococci were present. In the non-specific form symptomatic improvement resulted. In non-specific catarrhal endocervicitis of adults the symptoms disappeared as soon as an acid reaction was established. The most striking alleviation, however, was obtained in senile or atrophic vaginitis, with its chain of intolerable symptoms. This experience was not easily explained, because the secretion in these cases is acid. They call attention to the fact that the lactic acid bacilli die out in about a month, and then require renewal.

(82) Uterine Rupture.

R. R. Kahle (*Journ. Amer. Med. Assoc.*, December 29, 1917) reports a case of rupture of the uterus following an anterior hysterotomy. He says that the impaired integrity of the uterine wall through repeated pregnancies and old Cæsarean scars are more frequently causative factors than obstructed labour. He condemns the surgical procedure known as anterior hysterotomy, which has recently been brought forward as an easy and safe method of inspecting the interior of the uterus. In the case reported the patient had had a miscarriage at three months term in 1915, and at that time the abdomen had been opened, the uterus incised and the placenta removed ("Cæsarean operation after delivery!"). Eighteen months later the patient came to labour at full term, and suffered mild labour pains for about 48 hours, after which they did not return. The pulse was rapid, but of good volume. there were no fœtal heart sounds, profound shock was absent, and the patient said that she felt quite well. The uterus and fœtus could not be separately palpated through the abdominal wall, but the patient stated that she heard something crack about the time that the pains stopped. On opening the abdomen the dead baby was removed, hysterectomy was performed, and the patient made an uninterrupted recovery. Examination of the uterus revealed that it had yielded at the old hysterotomy scar. He sums up: (1) That anterior hysterotomy in a child-bearing woman is not an innocent procedure; (2) when uterine rupture occurs through scar tissue, the prognosis is more favourable, because there is less likelihood of severe hæmorrhage. The vulnerability of the Cæsarean scar makes it desirable for the patient to enter a well-equipped hospital for all future deliveries.

British Medical Association News.

MEDICO-POLITICAL.

Meeting of the Federal Committee.

(*Continued from page* 158).

The meeting resumed on February 7, 1918, at 9.30 a.m.

War Emergency Organization (*Continued*).

General Fetherston moved:—

> That the Federal Committee lay down principles for the guidance of members in dealing with patients and practices and the receipts thereof, for members on active service and particularly with regard to their resuming practice.

He pointed out that many medical practitioners were returning from the front. The majority of these men were senior men. There were, however, complaints concerning the manner in which they had been treated. No one seemed to know what the actual arrangements had been for the conservation of their practices while they were away. He thought that there was need of a court of appeal. For the purpose of arriving at a more equitable understanding, he had drafted some principles, and hoped that, if these principles were adopted, there would be more satisfaction when those who had previously been in practice, returned to the Commonwealth. He suggested that these principles should be sent to the several Branches as recommendations.

The proposals were embodied in a document. On the motion of the Chairman, the title of the document was modified to read: "Obligations of the Profession to its Members who are or have been on Military Duty Abroad."

The first paragraph defined the duty of medical practitioners in attendance on the patients of their colleagues on active service.

Dr. R. H. Todd recalled to the memory of the Committee that during the first two or three months of the war resolutions had been passed in each Branch of the Association in Australia for the purpose of safeguarding the interests of those joining the Australian Imperial Force. The New South Wales Branch had passed the following resolution:—

> That, with a view to conserving the interests of those members of the Branch who undertake naval or military service during the existing state of war, the rest of the members individually engage (in the event of being called upon to fill their positions or attend their patients) to restore the same to them upon their return to civil practice, so far as it may be in their power so to do.

The practice arising from this resolution had been satisfactory. The Council had taken every opportunity of impressing on the members the obligation on the part of those at home of restoring the patients to their original attendants on their return from active service. The local associations of members in some areas had prevented men from setting up in places from which one or more practitioners had gone to the front; and the committees of the local associations in accordance with the regulations of the Branch had kept a rigid control over the appointment of practitioners as medical officers of friendly society lodges.

Dr. W. N. Robertson explained that in Queensland they had had some difficulty in compelling members to conform to the resolution passed by the Queensland Branch in 1914:—

> That members of the Queensland Branch of the British Medical Association pledge themselves to undertake the duties of medical men who are called out on active service, as their substitutes, and will further decline to attend their patients after their return, or continue in any appointment, which they have held on their behalf.

Colonel H. H. E. Russell told the Committee that in South Australia the whole of the medical profession, with the exception of the very senior men and one or two Germans, had joined the Reserve or the Australian Imperial Force. In his capacity as Principle Medcal Officer he was able to see that every man did the right thing in connexion with his colleagues' patients. The Council of the South Australian Branch acted as a sort of arbitration or district committee and dealt with all cases requiring adjustment.

After full discussion of the succeeding paragraphs, General Fetherston's motion was adopted, and the memorandum, as amended, was approved in the following form:—

Obligations of the Profession to its Members who are or have been on Military Duty Abroad.

(1) Every care should be taken by medical practitioners who have been doing work for medical officers on military service, to restore all patients and appointments to the latter when they resume practice. They should refuse to attend these patients for at least twelve months after the return of the medical officer to civil practice. The refusal to attend patients of medical officers after their return to civil practice should apply equally to those who have been attending these patients during the absence of their colleagues, as to all other medical practitioners.

(2) The purchaser of the practice of a medical officer absent on military service should have his interests safeguarded in the same way as is set out in paragraph (1).

(3) No medical practitioner should accept any appointment held by a medical officer prior to his departure for military duty, until the expiration of twelve months after the resumption of practice by the medical officer.

(4) In the absence of agreement between the parties, the following procedure should be followed in the apportionment of the fees earned by the practitioner attending the patient or patients of a medical officer absent from his practice on military duty, whether such duty be in connexion with home service or service overseas, namely:—

> (*a*) After deducting the actual expenses from the gross receipts or, where the actual expenses are not ascertainable, after deducting one-third of such receipts, the remainder should be divided in equal parts between them.
>
> (*b*) Where dispute arises in respect of the apportionment, it should be settled by arbitration. And for this purpose it is recommended that each Branch appoint two of its members—one of them a member who has been on active service, and the other a member who has not—who, together with the President of the Branch, shall be an Arbitration Committee; the Branch Council to prescribe the powers and duties of the Committee and to lay down the procedure to be followed
>
> Note.—The word "patient," as hereinbefore used, is to be understood to be a person to whom the medical officer was the regular or family medical attendant prior to his going on military duty, and not a person to whom he has given casual or occasional attendance only.

In reply to the question whether practitioners who had been in practice prior to enlistment, might not suffer a considerable loss as a result of the earlier return of medical officers who had joined immediately after graduating, General Fetherston stated that he had no doubt that the interests of these practitioners could be adequately safeguarded. Several members expressed the view that the young men who had not yet been in practice, would naturally be inclined to establish themselves as soon as possible after their return to Australia. It was, therefore, determined that a letter be addressed by the Federal Committee to the Minister for Defence, requesting him to arrange that medical officers who had been in practice prior to their military service, should be permitted to return to Australia before those who had not been in practice.

On the suggestion of Dr. Sandes, supported by Dr. Todd, it was agreed, in furtherance of the policy of protecting the interests of members on active service, to consider the question of establishing a fund for the benefit of those who were disabled, and for the widows and dependents of those who had made the supreme sacrifice. General Fetherston moved:—

> That the Federal Committee request the Branches to prepare for presentation at its next meeting a scheme for raising a Federal fund, to be administered by the Committee for the purpose of affording assistance to the dependents of those members of the medical profession who have been disabled or killed while on active service, and to the disabled members themselves.

General Fetherston called attention to the fact that the matter was becoming one of increasing urgency, since many of the men who had been on active service for a prolonged period, were returning, and since the number of those killed was very considerable.

Dr. F. S. Hone seconded the motion. He called attention to the history of the movement. Some considerable time before, he had published a letter in *The Medical Journal of Australia* dealing with the principles involved, and suggesting that consideration should be given to this subject in order that a practical scheme could be evolved. The President of his Branch, Dr. J. C. Verco, had referred to the matter in his last Presidential address and had given it his hearty support. The Editor of *The Medical Journal of Australia* had advocated it on many occasions. A very considerable amount of money would be required, if adequate provision were to be made for the widows of those medical men who had lost their lives in the service of the country. Those who remained at home, had reaped the benefit of additional work and possibly of additional income, and they should be prepared to make a considerable financial sacrifice for this purpose

D. W. N. Robertson said that he had dealt with the question in the address he had given to his Branch at the of his term of office as President. He did not think that it would be asking too much from the prosperous members of the profession to give up a considerable percentage of their present incomes. There were many men who could afford to give £500 or £1,000 to a fund of this description. He supported General Fetherston's motion, which was carried unanimously.

Nationalization of the Medical Profession.

It was announced that the pronouncement adopted by the Federal Committee at its last meeting on the principles underlying the question of nationalization of the medical profession (see *The Medical Journal of Australia*, May 12, 1917, p. 409) had been referred to the Branches, and that this pronouncement had been approved by the New South Wales Branch, the Queensland Branch, the Western Australian Branch and the Tasmanian Branch. The Victorian Branch had suggested that paragraphs (1), (2) and (3) be deleted and that the following paragraph be inserted in their stead:

> (1) That nationalization of the medical profession would tend to deprive the profession of its freedom and incentive to develope along the natural lines marked out for it by the growth and expansion of scientific knowledge.

The South Australian Branch had intimated that, while not being in favour of compulsory nationalization of the whole profession, it was not opposed to schemes of nationalized medical service if arranged on an equitable basis; and therefore was not disposed to adopt all the resolutions, as passed by the Federal Committee.

Mr. G. A. Syme pointed out that the Victorian Branch held the opinion that the substituted clause was shorter and more concise and at the same time conveyed the same significance. He therefore moved that the pronouncement be amended accordingly. The motion, on being put to the Committee, was lost.

General R. J. H. Fetherston moved and Dr. J. Lockhart Gibson seconded:—

> That in paragraph (5) the words: "as tending to demoralize . . . public necessity" be deleted.

Dr. F. S. Hone moved as an amendment, that the words: "as tending to demoralize the recipients thereof" be deleted.

Dr. F. P. Sandes seconded the amendment, which was carried.

The pronouncement, as amended, was adopted.

Dr. F. P. Sandes moved:—

> That, having regard to the probability that some scheme, whether State or Commonwealth, of national medical service, involving nationalization of the medical profession, at all events to some extent, will be introduced at no distant date, the Federal Committee ask the several Branches to draw up schemes for such purposes, such schemes to be not inconsistent with the amended pronouncement on the subject adopted by the Federal Committee.

He suggested that the Branches should be asked to consider the question at an early date, in order that they might forward any schemes evolved to the Secretary of the Committee. The opinions of the various Branches could then be collated, together with the information obtained in 1914, into one report. This report should be presented for discussion to the Committee at its August meeting.

Dr. F. S. Hone seconded the motion. He held the opinion that the public should be informed that the doctors were thinking about these things, and were prepared to do what was necessary to safeguard the public health.

Dr. R. H. Todd agreed that there was a necessity of interesting the Branches on the subject. He called attention to the fact that what was spoken of as nationalization was a "platform" of both political parties, and had been brought into prominence in recent times.

After further discussion the motion was carried.

It was further resolved that the schemes received from the Branches by the Secretary should be collated and submitted to the Committee at its next meeting.

Fees for Examination and Report for Life Insurance.

The correspondence with the Branches on the subject of the minimum fees for examination and report for life insurance was read. It was announced that with the exception of the New South Wales Branch, all the Branches were in accord with the proposal of the Committee that the minimum fee for examination and report should be one guinea. Dr. R. H. Todd informed the Committee that the New South Wales Branch had given repeated and careful consideration to the proposal. He explained, however, that the companies were already accepting insurance without any medical examination, and that the opinion prevailed that the abolition of the 10s. 6d. fee for policies of £100 or less, where the examination did not include the investigation of any excretion and the report was on the prescribed short form, would result in pecuniary loss to the profession. It had been the practice in New South Wales to accept one guinea as the minimum fee, except in the cases referred to, and arrangements had been made with the companies accordingly. The New South Wales Branch preferred not to disturb this practice.

Dr. F. P. Sandes pointed out that the Australian Mutual Provident Society required all proponents in the Sydney metropolitan area to be examined by their salaried medical officers at the head office, and he was of opinion that if the smaller fee were done away with, the practice would extend to the country.

The Committee endorsed its previous resolution.

The Admission of Homœopaths.

General R. H. J. Fetherston moved:—

> That medical men who practised homœopathy may be elected members of the British Medical Association.

He pointed out that there were several practitioners who utilized homœopathic methods in their practices, but did not call themselves homœopaths. Many of these men were surgeons and practised surgery in an orthodox manner. He considered it a hardship to exclude these practitioners from the Association. He instanced the case of young graduates who took the position of resident medical officers at the Homœopathic Hospital, and who subsequently went into practice. These men had been excluded from membership because of their association with the Homœopathic Hospital. He regarded it as significant that some of the members who practised homœopathy in the course of their lodge work, had voluntarily associated themselves with the Victorian Branch in its stand against the friendly societies.

It was pointed out that the "Principles of Ethics" adopted by the Federal Committee provided as follows:—

> It is unethical for a member of the British Medical Association in Australia:
>
> (1) to designate his practice as based on an exclusive dogma, such as that of homœopathy, osteopathy, etc.,

Dr. F. S. Hone seconded the motion *pro forma*.

Dr. J. Lockhart Gibson was opposed to the suggestion that a practitioner who practised homœopathy, should be eligible for membership. In the past the homœopaths were either ignorant persons, or fraudulent persons. At the present day medical education made it impossible for anyone to accept homœopathy as a rational basis for treatment,

and he was therefore forced to the conclusion that the homœopath of to-day was necessarily a dishonest man.

General Fetherston referred to a clause in the Victorian Medical Practitioners' Act, which provided for the registration of one graduate each year from an American homœopathic college. This clause had been inserted long ago for the purpose of enabling the Homœopathic Hospital to obtain resident medical officers. There were some 25 or 30 homœopaths in Victoria who had become registered in this way.

Mr. Syme laid emphasis on the wording of the rule, "to designate." He held that if a man found that a homœopathic remedy yielded satisfactory results, he should not be debarred from using it. The test of eligibility for membership must be whether or not a practitioner designated his practice as homœopathy.

Dr. R. H. Todd stated that as long ago as 1905 the New South Wales Branch had passed resolutions to the effect that it was inconsistent with membership to profess homœopathy, and that homœopaths should not be met in consultation. He maintained that no practitioner trained in the light of modern science could accept the doctrines of homœopathy. He regarded homœopaths as fraudulent practitioners.

General Fetherston stated that he was quite satisfied with the expressions of opinion that had been voiced, including the information that surgeons attached to the homœopathic hospitals in London were not regarded as homœopaths. He therefore begged leave to withdraw his motion.

Decline of the Birth Rate.

General R. H. J. Fetherston referred to Professor Berry's address on the falling birth-rate, and asked the Committee to take steps to insure that the profession should lead the community to remedy this disastrous state of affairs. He thought that the best procedure would be for the Branches, severally and collectively, to take the subject up and to introduce reforms. The Federal Committee might appoint a sub-committee for the purpose of devising recommendations for the guidance of the Branches. He proposed that the sub-committee should consist of Mr. Syme (the Vice-President) and himself, with Professor Berry as a co-opted member.

Dr. W. N. Robertson seconded the motion, which read as follows:—

> That the Federal Committee be asked to consider the question of the falling birth-rate in Australia and to take such steps as they may think necessary to combat the position.

He stated that the Minister in Queensland had appointed a Royal Commission to investigate the whole matter.

Dr. F. P. Sandes raised the question whether it was within the scope of the functions of the Committee to deal with the sociological aspects of this question.

Dr. R. H. Todd expressed the opinion that the object would be better attained by inviting all the members of the Committee to interest themselves in the subject. He hoped that the Committee would confine itself to the medical aspect of the problem. He moved as an amendment:—

> (*i.*) That the representatives of the several Branches on the Committee be asked to consider the question of the decline of the birth-rate from the medical point of view, and to formulate proposals for its counteraction.
>
> (*ii.*) That the proposals be collected by the Secretary and be embodied in a report to be considered by the Committee at its next meeting.

Dr. F. P. Sandes seconded the amendment. General Fetherston withdrew his motion in favour of Dr. Todd's amendment, which was carried.

Proposal for a Chairman's Annual Address.

On the suggestion of Dr. Todd, it was agreed that the question of instituting an annual address by the Chairman should be considered at the next meeting of the Committee. Dr. Todd pointed out that there was no central body in Australia entrusted by Parliament with the regulation of the affairs of the profession, as was the General Medical Council in the United Kingdom, whose President delivered an address each year of the greatest value and interest to the profession and the community at large. On the other hand, the Federal Committee of the British Medical Association in Australia was more and more becoming the central authority for the guidance of the profession and the public in medical affairs, and an address by its Chairman each year, dealing with some of the greater questions in which the profession and the community were reciprocally concerned, could not fail to produce good results.

Votes of Thanks.

Hearty votes of thanks were accorded to the Victorian Branch for providing accommodation to the Committee, to the Branch Council for their generous hospitality, to Mr. Syme for his able conduct of the meeting, and to Dr. Todd for his invaluable services as Secretary.

The following have been elected members of the New South Wales Branch:—

Archibald John Collins, M.B., Ch.M., 1913 (Univ. Sydney), Hilda Street, Wahroonga.

Hessel George Howell, M.B., 1917 (Univ. Sydney), 33 Arcadia Street, Glebe Point.

Frederick William Liggins, M.B., 1917 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

Herbert James Orr, M.B., Ch.M., 1916 (Univ. Sydney), Palace Street, Ashfield.

Colin Percival Stewart, M.B., 1908, Ch.M., 1909 (Univ. Sydney), 30 Wolseley Road, Point Piper.

Grosvenor John Williams, M.B., Ch.M., 1916 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

Thornleigh Farranridge, M.B., Ch.M., 1917 (Univ. Sydney), 50 Wigram Road, Glebe Point, and John Leslie Harrison, M.B., 1916 (Univ. Sydney), Thompson Street, Mosman, have been nominated for election to the same Branch.

THE LODGE DISPUTE IN VICTORIA.

The Council of the Victorian Branch of the British Medical Association addressed the following letter to the Premier, Mr. Bowser, on February 19, 1918:—

> I am instructed by the Council to inform you that the proposal made by you to the President on February 15, that the matter in dispute with the friendly societies should be submitted to a special arbitration tribunal, was considered at a special meeting of the Council held on Tuesday evening. It was resolved: "That the Council regrets that it is unable to alter its decision on the question of arbitration, and refers the Premier to its letter of February 9, wherein the Council sets out its reasons for declining to agree to arbitration." The Council is at a loss to understand why the proposal should be reiterated without any material alteration, except as to the constitution of the arbitration tribunal, and without any attempt to controvert the principles in reasoning upon which the determination was based. The Council has formulated and placed before the friendly societies an agreement which was accepted in New South Wales, and has been in operation for the past four years. No complaint has been made by the friendly societies in that State as to the remuneration or income limit, or to any of the other conditions of the contract. There is nothing in the agreement that can imperil the existence of the friendly societies, or deprecate their methods of securing medical service for their members. It cannot but improve the service. The refusal to accept the agreement, on the other hand, will inevitably endanger the progress and extension of the friendly societies' activities. The Council is in complete sympathy with a generous scheme of contract medical practice, as applied to wage-earners and other members of the community with limited incomes.
>
> When the Council first considered the general dissatisfaction that members felt with regard to the terms and conditions of lodge practice, there was no thought or suggestion of removing the controlling influence of the friendly societies from this great work; up to the present the Council has refrained from starting any scheme of direct contract medical practice.
>
> The Council, however, has determined that, failing an early acceptance of the agreement by the friendly societies, it will proceed to make available the benefits of a direct contract practice, in which the medical men will deal directly with the patients.

THE SUBVENTION ARRANGEMENTS OF THE FRIENDLY SOCIETIES OF NEW SOUTH WALES.

In the course of the discussions which have taken place in Victoria concerning the conditions under which the members of the medical profession are prepared to enter into arrangements with the friendly societies, reference has frequently been made to the fact that the terms of the Common Form of Agreement between the friendly society lodges and the medical officers in New South Wales has proved satisfactory to both parties to the contract. As often as this argument has been advanced, so often have the representatives of the Friendly Societies' Association claimed that the legislative provisions in the two States are so different that a comparison could not be drawn. Mr. Mauger, the President, has opposed the proposal that the Premier should cause an enquiry to be made in New South Wales with the object of ascertaining what effect the introduction of the increased capitation rate and of the income limit clause has had. He claimed that the fact that the friendly societies in New South Wales were in receipt of subventions, rendered all enquiry futile. It will, therefore, be of use to explain the extent and significance of the subventions.

In order to gain a clear conception of the conditions obtaining in the two States, it is necessary to point out that there is no material difference between the legal position of societies in Victoria and in New South Wales in regard to the funds. The cost of medical attendance and medicine and management has to be defrayed out of funds ear-marked for the purpose. Money set aside for sick pay, funerals or other objects cannot be utilized for these purposes. Moreover, the societies collect contributions from the members to provide for medical attendance and medicines and to cover the cost of management, and if the amount available were found to be inadequate for these purposes, special levies would have to be raised. On the other hand, the members appear to be able to contribute a sufficient amount to meet the charges, and this takes place without hardship on the members.

In New South Wales the average capitation cost of medical attendance and medicine has increased from 18s. 11d., in 1912, to 21s. 1d., in 1915. During the first year of the war there was a decrease in membership amounting to approximately 3.3%, while in the second year the decrease amounted to 2%. The fact that the total membership stood at 178,705, in 1915, is evidence that the increase of fees was borne by a very large number of members. The total cost of medical attendance and medicines, in 1915, was £182,705, and in 1916 it was £178,926. In 1915 £88,419 were expended on management. It is interesting to note in this connexion that the proposal has been made that in certain districts in the neighbourhood of Melbourne considerable economies could be effected by the amalgamation of lodges. The New South Wales friendly societies had, at the end of 1915, accumulated funds set aside for medical benefit and management which amounted to no less than £89,421. This sum yielded interest amounting to £2,850 for the year. Thus it will be seen that, notwithstanding the increased medical benefit contribution and the exclusion of wealthy lodge members, the societies were adding over £1,000 per annum to this fund.

Part VIII. of the *Friendly Societies Act*, 1912, of New South Wales provides for certain subvention grants to be paid by Parliament. According to section 79, there shall be paid to the trustees of every applicant society, by way of subvention, (*a*) one half of the cost to the society in each year for sick pay, according to its rules, in respect of the period of sickness after twelve months from the commencement of each case of continuous sickness, for all male members less than 65 years of age and for all female members less than 60 years of age; (*b*) the whole cost to the society for sick pay in respect of male members aged 65 years and over, and of female members aged 60 years and over; provided that the amount payable by the State under this section shall not exceed five shillings for each week of sickness included in any claim made under the two paragraphs. This section, consequently, does not affect the medical attendance, medicine and management fund at all.

Section 80 reads as follows:—

> 80. There shall be paid annually to the trustees of each applicant society an amount equal to the total contributions chargeable under the rules of the society for the benefits of medical attendance and medicine in respect of male members aged sixty-five years and over, and of female members aged sixty years and over.
>
> Provided that the rules of the society shall not charge rates of contribution for such benefits different to those chargeable to members under the ages specified herein.

Section 81 has exclusive reference to funeral benefit. It thus will be seen that the subvention grants paid under the provisions of section 80 alone have reference to medical attendance and medicines. No male member under the age of 65 years and no female member under the age of 60 is taken into account. During the year 1915 4,909, or approximately only 2.7% of the members, were "claimant members" under this clause. The total amount of the grants for medical attendance and medicine, in 1915, was £6,478, and in 1916 was £7,298. These amounts represent approximately 4% of the total cost of medical attendance and medicine. It is quite immaterial to the question at issue that the friendly societies in New South Wales received, in 1916, from the State subvention grants aggregating £27,963, since £20,665 of this sum was paid for sickness benefit. We are merely concerned with the smaller sum. In 1915 the cost of medical attendance and medicines in Victoria was £162,537, as compared with £182,705 in New South Wales. There were 158,746 benefit members in Victoria.

The capitation rate demanded in Victoria is 20s. for the city members. The advantage which the New South Wales societies would have over the Victorian societies would, therefore, represent a contribution of 9½d. per annum in respect of about 3% of the members. It must further be remembered that in many cases the members to whom this clause applies in New South Wales, have ceased to contribute to the funds. The loading necessary for the actuarial adjustment of the premiums of the contributing members is so small that no one feels it at all. Indeed it is doubtful whether the members are aware that any loading exists. This loading in New South Wales is necessary for the funeral benefits of members over the 65-year limit. In Victoria, where no State subvention is granted, the loading has to cover sick benefit, funeral benefit and medical benefit. The actuaries would need to put on spectacles to calculate the additional loading necessary to provide for the increased capitation fee for the aged members. It will thus be seen that the subventions are of importance to the societies in New South Wales, because they relieve them of some of the burdens associated with old age, but that the advantage is only marked in connexion with the benefits other than the medical benefit. In other words, this difference between the financial position of the friendly societies in Victoria and New South Wales does not affect the questions in dispute.

Naval and Military.

CASUALTIES.

In the 384th list of casualties, which was issued on February 25, 1918, the names of 19 commissioned officers are mentioned. Among them is Lieutenant-Colonel Roy Samuel Purston, who is reported to be seriously ill. This is the second occasion on which this officer has been off duty on account of illness.

APPOINTMENTS.

It has been announced that the Minister for Defence has instructed General Fetherston, Director-General Medical Services, to proceed to England to investigate the causes of the numerous rejections in England of soldiers passed as fit for service in Australia. He will also enquire into the methods of dealing with disablement.

Colonel G. Cuscaden, Principal Medical Officer of the Third Military District, has been appointed Director-General Medical Services in Australia, with the temporary rank of pointed Principal Medical Officer.

Naval Forces of the Commonwealth.

Kevin Byrne, M.B., Ch.M., is appointed Surgeon for temporary service, with salary at the rate of 25s. per diem and rations, and is to be paid an Equipment Allowance of £25 on first appointment. Dated 19th November, 1917. (That portion of Executive Minute No. 116/1917 relating to the appointment of Surgeon Kevin Byrne, notice of which appeared on page 4313 of *Commonwealth Gazette*, No. 222, of 27th December, 1917, is hereby cancelled.)

Army Medical Corps.

To be Majors—

Captains F. L. Bignell, P. A. Stevens, L. May, W. S. Garnett, F. F. McMahon, Captatin (temporary Major) N. M. Gibson, Captains H. A. C. Irvine, J. G. Avery, M. G. Sutton, E. W. Ferguson, R. H. Hudson and D. J. Glissan. Dated 12th October, 1917.

Captains B. Brooke and W. H. Tofft. Dated 16th October, 1917.

It is with great pleasure that we are able to announce that Colonel C. L. Strangman and Major J. W. Flood, who were passengers on board the *Matunga*, which was reported missing, are safe, though in captivity.

THE PUBLIC HEALTH OF NEW SOUTH WALES.

(Continued from page 160.)

Hospitals.

The Director-General, in his main report, expresses the opinion that a country hospital which receives a subsidy from the public funds, should contain general wards for the admission of male and female patients, an operating room or theatre, an isolation block for persons suffering from infective conditions, a maternity ward and a strong-room for the segregation of delirious or insane patients. In many country hospitals in New South Wales the accommodation mentioned is not available.

Hospital Admission Depôt.

The Government Medical Officers for Sydney, Dr. A. A. Palmer and Dr. A. C. Cahill, attend each morning from 9 a.m. to 12.30 p.m. at the Hospital Admission Depôt for the purpose of examining indigent sick persons who seek admission to the various hospitals and institutions. The total number of persons applying in 1915 at the Depôt was 13,152. Their ages ranged from one month to over 60 years. Of these persons, 3,529 were sent to the Coast Hospital at Little Bay, 641 to the Royal Prince Alfred and Sydney Hospitals, 163 to the Women's Hospital, 94 to the Hospice for the Dying, and the remaining 6,595 to various State Institutions. Dr. Palmer gives details of the length of residence in New South Wales, the ages, the nationality and the occupations of the persons seeking relief.

The Coast Hospital, Little Bay.

Dr. Wallace, the Acting Medical Superintendent, publishes a special report of the Coast Hospital for the year 1915. At the beginning of the year there were 424 patients under treatment. During the course of the year 4,806 were admitted; there were 198 deaths, and 4,592 patients were discharged. The death-rate was therefore 4.13%. The average number of beds occupied was 440, and the average length of stay of the patients was 30.9 days. There were 773 more patients admitted in 1915 than in 1914, and the death-rate was slightly higher.

There were no less than 1,228 cases of scarlatina dealt with during the year. It is stated that the incidence of this disease in the metropolitan area was considerably higher than in the preceding year, and consequently that more cases were dealt with in the Hospital. Nineteen of the patients died, which represents a case mortality of 1.5%. Diphtheria was also prevalent; 910 patients were admitted with this complaint. The number of deaths was 35, and the case mortality 3.7%. Intubation was performed on 29 patients and tracheotomy on 16. The greater number of the patients received between 4,000 and 10,000 units of antitoxin. In a few cases only 2,000 units were given, while 91 patients received 20,000.

There were 104 patients suffering from enteric fever, of whom ten died, which is equivalent to a case mortality of 9.6%. In 1914 the case mortality was 16.43%. Of the 104 patients, 54 were between the ages of 16 and 30. Of these 54, seven died, so that the case mortality from enteric fever among the adult patients was practically 13%.

There were 359 cases of morbilli, with two deaths, four cases of pertussis, without a death, 50 cases of erysipelas, with eight deaths, and 14 cases of variola without a death.

From the statistical tables attached to the report, it is seen that a large number of patients suffering from medical and surgical diseases of all kinds were dealt with. No further information is given concerning these patients, beyond that contained in the table. During the course of the year 648 operations were performed, including a considerable number of major operations. The Acting Medical Superintendent does not deal with the question of the staffing of this Hospital. During the year, Dr. R. J. Millard, the Medical Superintendent, was absent on military service, as were three of the Assistant Medical Officers, *viz.*, Drs. T. M. Furber, James A. James, and the late T. J. Frizell. We presume that the positions of these four resident officers were temporarily filled. In view of the very large number of patients under treatment and of the considerable number of operations performed, it would be interesting to learn whether the greater part of the work was undertaken by the Acting Medical Superintendent and his Assistant Medical Officers, or whether the members of the Honorary Staff visited the Hospital at regular intervals for the purpose of conducting the work.

The nurses received instruction from the members of the medical staff and from the Matron, as well as from a specially engaged teacher, who taught the subject of invalid cookery. Examinations were held for the first, second, third and fourth year nurses. The number of successful candidates with four years' training was 14. During the year 12 certificated nurses left the Hospital to take up private nursing. There was a considerable amount of sickness among the nurses, no less than 66 of the 110 members of the nursing staff being granted sick leave. One suffered from enteric fever and died, while nine suffered from diphtheria, six from scarlatina and 13 from morbilli.

The average cost per occupied bed for the year was £69 5s. 7d. In 1914 it was £74 7s. 5d., and in 1913 it was £87 6s. 6d. The total expenditure amounted to approximately £32,000, while over £765 was saved as a result of goods sold to other institutions and collections. The Auditor deducts from the gross expenditure the value of the stock in hand at the end of the year, after having added its value at the beginning of the year.

In the Laboratory a large number of bacteriological examinations for diphtheria bacilli were made. In a few cases tubercule bacilli, leprosy bacilli and gonococci were sought in smears. Notwithstanding the fact that 5,214 patients were under treatment during the year, only 41 examinations of urine and 24 of blood were carried out. We understand that the Widal test and the Wassermann test were performed at the Microbiological Laboratory.

The infectious diseases division of the Hospital was enlarged to the extent of providing 55 extra beds during the year. Various other renovating work was undertaken. About 150 acres of peat swamp were drained and utilized for agricultural purposes, with satisfactory results. A small dairy herd yielded a sufficient supply of fresh milk, at less than contract price, to satisfy the needs of the Hospital. The bread supply was derived from the Penitentiary in the neighbourhood of the Hospital.

(To be continued.)

Correspondence.

A RINGWORM EPIDEMIC.

Sir,—In the last issue of the *Journal* I was pleased to see that Dr. Lawrence was interested in the fungus affecting man and mice, on which a few months ago I read an article before the local branch of the British Medical Association. I desire to refer to certain portions of my article which he has misinterpreted. He attributes to me a statement in regard to the period of inoculation, which was, in point of fact, as definitely stated in my paper, merely a history

given by the patient, whose condition had only troubled him for a few weeks. If I were asked to give an opinion as to the duration of the advanced lesion as shown in my article, I should say that it had been present for two or three months, and the early lesion for about three weeks. Dr. Lawrence credits me with having only described one case in detail, but the brief account of a single case by himself. was evidently given, like my own, as a type example. Before writing my article I saw a number of these cases, and examined culturally three cases, two from the glabrous skin and one from the beard. These cases occurred in men who had been handling mice-infected wheat, and the three gave identical cultures. After carefully perusing Dr. Lawrence's paper I cannot find any direct evidence of the relationship between the disease as it appears in man and mice, which it was his evident intention to prove. His inoculation experiments from a mouse and a kerion-like lesion on the arm of a man, producing similar clinical lesions in a guinea pig prove nothing, and are not even diagnostic of favus. They are nullified by his statement made a little further on that some years ago he obtained from a culture growth of the scalp clinical lesions, appearing as "(*a*) circinate patches with broken hairs; (*b*) circinate patches of pustular folliculitis; (*c*) irregular bald patches, as one sees in one phase of the disease in mice," so that even an ordinary ringworm of the scalp can simulate the clinical appearances produced by the inoculations which he describes. An inoculation of a guinea pig by Bodin with *Achorion quinckeanum* produced on the fourth day a favus cup the same as in mice. In order to prove the causal relationship it is necessary to make cultural and not clinical observations, and preferably to procure cultures from a number of infected mice, and from a number of men with the condition, and with a history of having worked amongst wheat infested by these mice. One word on the clinical manifestations which are stated to "have differed somewhat from ordinary trichophyton lesions" . . . "in not showing an undoubted ringworm appearance." This statement is not in accord with most authorities, and even Dr. Lawrence states in the single case that he briefly records, there "was a very extensive circinate red patch." Sabouraud asserts "that the animal achorions appear to have singularly developed and exaggerated the power that all the achorions possess of making not only cups, but circles, to the extent that their diagnosis is often made by chance." Might I suggest that it would have been better had Dr. Lawrence made his cultures on media, to-day recognized as standard, and used for purposes of comparison, rather than on a two per cent. beef peptone medium. I cannot find any mention in the description of his culture as to whether it is of a downy or powdery nature, a most important point in its recognition, and whether it was derived from man or mice. According to my own observations the dermato-mycosis as it previously affected man, has practically disappeared. I have seen mice infected with favus both before and since the recent epidemic, and am of opinion that this condition is not new to Australian dermatologists, but up to the present I have not obtained from human beings a culture of the common favus affecting mice, *viz.*, *Achorion quinckeanum* which Dr. Lawrence attributes the recent epidemic in man to have been due. We are aware that man can become infected with the *Achorion quinckeanum* through mice, but the cases recorded are few in number, and I am of the opinion that the disease as it appeared some months ago in this State, was due to the fungus as described by me, and that it was probably acquired by the mice from some other animal.

Yours, etc.,

C. NORMAN PAUL.

235 Macquarie St.,
Sydney.

JONES *v.* LE COUTEUR.

Sir,—Under the above heading in your issue of January 5 I brought under the notice of the profession certain evidence, as given by the defendant's witnesses, Drs. Frank Andrew, J. Newman Morris and W. M. Clayton. Having now given six weeks wherein to ascertain the necessary information to respond to my challenge, and no attempt having been made to do so, there is but one conclusion to arrive at, and that is their inability to justify the statements they made in sworn evidence. A position which no man of any standing could envy. For, if I may put it in this way, no man is a man at all who is afraid to speak his mind.

I may perhaps find some excuse for Drs. J. Newman Morris and W. M. Clayton by concluding that, as the work does not come under the heading of general work, and the nature of the work being of difficult and of comparatively recent discovery (a matter of eight years or thereabouts), they were not conversant with its nature and the difficulty of carrying it out, and that possibly they concluded it was the old method of inflation of the middle ear. Hence their erroneous conclusions. After all, I cannot see that ignorance could be taken as justifying such evidence, for no man is capable of setting a valuation upon work he knows nothing about. Then why do so, and swear to it. But it is Dr. Frank Andrew, whose lengthy evidence, not founded upon facts, that I challenged. He has utterly failed by his silence, which, if it were me, I would conclude was not to my credit.

Yours, etc.,

RICHARD JONES.

110 Collins Street, Melbourne.
(Undated.)

Obituary.

RONALD McLEAN STOKES.

In our issue of January 19, 1918, page 50, we recorded the death of Ronald McLean Stokes, which took place on December 18, 1917, after an attack of enteric fever of six days' duration.

Ronald McLean Stokes was born in Grahamstown, South Africa, on July 29, 1864. He was the fourth son of the late William James Stokes, of the Royal Engineers. He was educated at Devonport, Sandymount, and the Blue Coat School. He studied medicine at Dublin, and was in residence at Trinity College. He did his clinical work at Mercer's Hospital, St. Vincent's, at the Coombe and at the Rotunda. At the end of 1891 he obtained the diplomas of the Royal College of Physicians and Surgeons of Edinburgh and of the Faculty of Physicians and Surgeons of Glasgow. After qualifying he became House Surgeon at the Mercer's Hospital in Dublin, and later took a resident appointment at the local hospital in Monmouth. For 12 years he practised in Monmouth, where he was Medical Officer of Health. He also conducted private practice for a short time in Hull and in London. In June, 1905, when in London, he married the only daughter of the late William Young, of Invernessshire. In 1911 he came to Australia, and was appointed Medical Superintendent of the Springsure Hospital, Queensland. A little later he practised in Cooroy, and became attached to the Selwyn District Hospital and to the Cloncurry District Hospital.

In the early part of his career he held a position in the South Wales Borderers (Volunteer Corps). He retired with the rank of Captain. In 1914 he offered his services to the Australian authorities. At about this time he gave up his Cooroy practice and obtained the appointment at the Selwyn Hospital. Although he held himself in readiness, his services were not accepted by the military authority. He was a man who was always prepared to do his duty without ostentation. It is significant of the man that he should have been content to do good work in the sparsely populated areas of North Queensland after having achieved great popularity among his comrades and colleagues. In his younger days he was an ardent International footballer, and won his cap, which entitled him to a place in the Irish team. He leaves a family of four young children and his widow to mourn his loss.

Books Received.

TECHNIC OF THE IRRIGATION TREATMENT OF WOUNDS BY THE CARREL METHOD, by J. Dumas and Anne Carrel. Authorized Translation by Adrian V. S. Lambert, M.D., with an Introduction by W. W. Keen, M.D., LL.D., F.R.C.S.; 1917. New York: Paul B. Hoeber. Crown 8vo, pp 90, illustrated. Price, $1.25 net.

PLAIES DE LA PLEVRE ET DU POUMON, by R. Grégoire and A. Courcoux. Collection Horizon: Précis de Médecine et de Chirurgie de Guerre; 1917. Paris: Masson et Cie. Crown 8vo., pp. 212, illustrated. Price, 4 fr.

THE THEORY AND PRACTICE OF MASSAGE, by Beatrice M. Goodall-Copestake; 1917. London: H. K. Lewis & Co., Ltd. Demy 8vo., pp. 251, with 56 illustrations. Price, 8s. 6d. net.

PRACTICAL GYNÆCOLOGY, a Manual for Students and General Practitioners, by George Horne, M.D., Ch.B.; Second Edition, revised and enlarged; 1917. Melbourne: James Little. Demy 8vo., pp. 331, illustrated. Price, 21s.

Dr. E. Temple Smith, who is about to leave Sydney on active service, informs us that during his absence Dr. A. H. Rutherford has kindly consented to see his patients for him at his (Dr. Temple Smith's) rooms in 135 Macquarie Street, Sydney.

Proceedings of the Australian Medical Boards.

QUEENSLAND.

The undermentioned gentleman has been registered under the provisions of *The Medical Act of* 1867 as a duly qualified medical practitioner:—

Welply, Henry Donald, Goondiwindi, M.B., Ch.B., Univ. Edin. 1914.

Medical Appointments.

The appointment of Dr. Ralph Athelstane Noble (B.M.A.) as Junior Assistant Medical Officer, Lunacy Department, New South Wales, has been confirmed.

Dr. G. R. P. Hall (B.M.A.) has been appointed Honorary Physician to the Lady Edeline Hospital for Babies, Greycliffe, Vaucluse, New South Wales.

Dr. B. H. Morris, Inspector-General of Hospitals of South Australia (B.M.A.), has been re-appointed Chairman of the Dental Assistants' Board.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xix.

Royal Alexandra Hospital for Children, Camperdown, Chief Resident Medical Officer.

Toowoomba Hospital for the Insane, Queensland, Assistant Medical Superintendent.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges, Institutes, Medical Dispensaries and other contract practice. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Medical Officers to the Selwyn Hospital, North Queensland. Brisbane United Friendly Society Institute Cloncurry Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	The F.S. Medical Assoc., Incorp., Adelaide. Contract Practice, Appointments at Renmark.
WESTERN AUSTRALIA. (Hon. Sec., Health Department, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Parramatta, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
TASMANIA. (Hon. Sec., Beltrive, Tasmania.)	Medical Officers in all State-aided Hospitals in Tasmania.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, N.Z.

Diary for the Month.

Mar. 5.—N.S.W. Branch, B.M.A., Ethics Committee.
Mar. 6.—Vic. Branch, B.M.A.
Mar. 7.—N.S.W. Branch, B.M.A., Last Day for Nomination of Candidates for Branch Council.
Mar. 12.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Mar. 12.—Tas. Branch, B.M.A., Council and Branch.
Mar. 14.—Vic. Branch, B.M.A., Council.
Mar. 19.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Mar. 20.—W. Aust. Branch, B.M.A.
Mar. 20.—South Sydney Med. Assoc. (N.S.W.).
Mar. 20.—Western Suburbs Med. Assoc. (N.S.W.).
Mar. 21.—N.S.W. Branch, B.M.A., Return of Ballot Papers for Election of Branch Council.
Mar. 22.—Q. Branch B.M.A. Council.
Mar. 22.—N.S.W. Branch, B.M.A., Annual Meeting.
Mar. 26.—N.S.W. Branch, B.M.A., Council.
Mar. 27.—Vic. Branch, B.M.A., Council.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.